THE OIL WEEKLY

ENGINEERING • NEWS • STATISTICS

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The Oil Man's Calendar

SEPT. 16–18	National Petroleum Association, Atlantic City, N. J.
OCT. 2	AIME Regional Meeting, St. Louis.
5– 9	National Safety Congress and Exposition, Chicago.
8–10	Texas Mid-Continent Oil and Gas Association, Dallas, Texas.
12–14	American Society of Mechanical Engineers, Rochester, New York.
12–17	AIME, Petroleum Division, Los Angeles.
19	National Stripper Well Association, Wichita, Kansas.
20–21	Independent Petroleum Association, Wichita, Kansas.
29–31	AIME, Petroleum Division, Austin, Texas.
30–31	Illinois Mineral Industries Conference, Urbana.
NOV. 5– 6	American Association of Petroleum Geologists, Los Angeles.
6	California Natural Gasoline Association, Los Angeles.
9–13	American Petroleum Institute, Stevens Hotel, Chicago.
16–18	American Institute of Chemical Engineers, Netherlands Plaza Hotel, Cincinnati.
17–21	National Chemical Exposition, and Industrial Conference, American Chemical Society, Chicago.

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The Changing Panorama

Improved Post War Fuels and Cars

BECAUSE of conditions brought about by the war, both the petroleum and automobile industries have unique opportunities to cover in a single stride the technological advances in transportation which would formerly have required years of gradual improvements.

Dr. Graham Edgar, vice president of Ethyl Corporation, explains the situation thus:

The tremendous demand for high octane aviation gasoline together with the program for synthetic rubber has brought about the erection of greatly increased catalytic cracking capacity, which undoubtedly will be used after the war to produce motor gasoline of high anti-knock quality. Plants for producing the alkylate so necessary for aviation gasoline will have capacities probably much greater than the post-war demand for aviation gasoline, as great as this may be. Plants for producing toluene and other aromatics probably will be available also. Furthermore, research has been stimulated by the war and improved processes may be expected. Therefore, gasoline approximately equivalent to the premium grade of 1941 (say, 80-octane) probably can be produced as a house-brand gasoline, and premium gasolines having an effective anti-knock value of between 90 and 100 octane can be produced.

Whether such gasoline will be produced and marketed depends largely upon the automotive engineer, who will find himself in a position unique in history. Heretofore, under the continued pressure of getting out yearly models, desirous of reusing as many tools, dies, etc., from previous models as might be feasible, and doubtful of public acceptance of too radical a change in car design, the automotive industry has made all changes gradually. Now, with no cars of any kind, the design engineer has a breathing space in which to plan far-reaching improvements.

Most tools and dies will have to be scrapped before automobile manufacture can begin again. Metals, such as aluminum and magnesium, will be available in quantity at reduced price. New and better plastics will be available. Coupled with this will be a car-hungry public. As far as body design goes, one can look forward with confidence to radical changes, but what about the engine?

No one knows what the engine of tomorrow will be like, but it appears likely that with improved fuels available, the automobile engineer will take advantage of the situation and offer something constituting an improvement.

WPB Plans Central Rubber Agency

AS congress continued to fuss over the rubber situation, it became known that Nelson within a week will set up a rubber agency within WPB, and that, under his direction, all of the now scattered authority over the synthetic program will be centralized.

Five or six of the keenest experts and engineers will be drafted for the new organization which, under Nelson's direction, will do all of the things the Gillette bill outlines for the proposed independent rubber agency which it would create.

☆

In a column entitled "Washington Merry-Go-Round" by Drew Pearson, published in the various newspapers in the country on July 14 appeared the largest assembly of misinformation on the rubber situation and personalities that we have ever seen condensed into a newspaper column. Filled with innuendoes and evil insinuations, in our opinion it could not possibly have been calculated to contribute anything to the successful handling of the rubber situation. If a newspaper Ananias Club is organized we should like to propose Drew Pearson as the initial member.

A Tubeless Tire Is Announced

INVENTION of a revolutionary heavy-vehicle tubeless tire has been announced by B. F. Goodrich Company. Use of a specially-designed locking member which retains the air in the casing or tire is the secret of the new development, which under substantial tests gave results that indicated its usefulness and ability to perform under all sorts of difficult road conditions, it was stated. Further tests under other auspices are being conducted.

The new device can be mounted in a tire with ease in a procedure which is simple to learn and requires no special tools.

While the amount of rubber the new invention may save varies according to the size of the tire, John L. Collyer, president of Goodrich, estimates that a minimum saving will be approximately 7 percent of the rubber content in the conventional casing-and-tube ensemble.

☆

Phillips Petroleum Company has moved four 64,000-barrel cone roof tanks from Seminole, Oklahoma, to Kansas City, Mo., and changed them to floating roofs. This procedure cost more than new tanks. However, it saved 1500 tons of steel plate, badly needed in the war effort.

Seek Used Equipment For Army Camps

FOR use in army camps and various other military installations, the War Production Board is anxious to obtain the following material:

Boilers; gasoline tanks of from 250- to 500-barrel capacity; lube oil tanks; pipe, screw or plain end of sizes 4 inches to 10 inches; turbo generators; compressors; generators; steam engines; rotary converters; diesel engines; transformers; diesel generators; motor generators; steam turbines; gas engines; engine generators; motors; synchronous condensers; valves and fittings; blowers; fans; and pumps.

If you know of any of the above equipment in usable condition or that can be made usable by minor repairs, the government is willing to purchase the material. Communicate with Conservation Division, Industrial Salvage Section, War Production Board.

☆

Windshield tax stamps will be used to renew Oregon's 1942 automobile license places for 1943. Only purchasers of new vehicles and new residents of the state will get 1943 metal license plates. About a dozen other states are considering the use of tax stamps in place of plates.

Chances of Getting Civilian

A frank look at a dark picture as the new synthetic industry tackles the greatest economic emergency and chemical engineering job ever encountered

THE accompanying article on the rubber situation, appearing in the current issue of *The Lamp*, official publication of Standard Oil Company (New Jersey) is one of the most interesting which has yet appeared on the subject of rubber.

Some of the conclusions made in the article may differ with views of others, for instance those relating to the amount of scrap rubber on hand. The campaign to bring in scrap rubber has produced about 500,000 tons from the homes and industrial plants of the nation; there must be between 150,000 and 200,000 tons in the hands of the reclaiming plants, while the amount in the hands of rubber scrap dealers could easily bring the total up to 1,000,000 tons—or enough to operate the reclaiming plants for nearly three years.

Reference to reduction in rubber usage by the Army is interesting. We have observed that heavy I. G. trucks used by the Army are operating with four rear wheels removed when in use on paved highways and that the operation seems to be just as efficient as when the extra wheels were in use.—*The Editor*.

★ ★ ★

IN STILL another section of the current issue of *The Lamp* we find these interesting observations:

"Here are three bright spots in the rubber picture:

"1. The actual output of synthetic plants that have been completed so far has been found to be generally above the capacities for which they were designed.

"2. A new process announced recently by Standard Oil Company (N. J.), which will be used in 33 plants now planned or under construction by various oil companies, provides an additional supply of the best raw material for production of possibly a greatly increased output of butadiene, the base of Buna-S synthetic rubber.

"3. Donald M. Nelson, War Production Board chairman, was quoted recently as indicating that Thiokol, a recapping material produced by Dow Chemical Company, may be manufactured in sufficient quantities to keep present cars on the roads until the synthetic rubber program is in full swing."—*The Editor*.

VIRTUALLY overnight we face the task of making the United States, world's largest natural rubber consumer, independent of foreign rubber sources. That means creating in two years a rubber producing capacity ten times greater than Germany was able to build under her five-year plan preceding the present World War. It means doing in as many months what Far Eastern rubber plantations took more than 25 years to accomplish.

Can we do it? Let's begin by studying the accompanying table prepared for the Truman Committee by the Office of Price Administration on June 11th. The figures are for the United Nations as a whole.

The stark outlook is that despite an expected synthetic production of 300,000 tons in 1943, all nations fighting the Axis will face an absolute rubber famine by the end of next year.

The figures make it plain that the United States will be required to supply 745,000 tons of rubber this year and next to the rest of the Allied Nations. And consider that item of civilian requirements. In 1940, a typical peacetime year, we in America consumed some 550,000 tons of rubber. But this table shows that in 1942 there will be available only 150,000 tons, and but 120,000 tons in 1943. Less than one civilian consumer out of three will receive new rubber. And every pound allocated will go to strictly essential uses, which do not include any new automobile tires for so-called normal driving.

To round the picture out through 1944, when our synthetic rubber production is expected to reach a peak of 800,000 tons, a trade authority estimates that total supplies of 860,000 tons in that year (which includes natural rubber from South America, etc.) will just about balance requirements and again leave the rubber cupboard bare.

Where Our Rubber Must Come From

NATURAL RUBBER—In the O.P.A. table, the "New Crude" item undoubtedly includes rubber from the island of Ceylon, South and Central America and Africa, the only sources still open to the Allied Nations. With Ceylon threatened, shipments from that part of the world are uncertain. Furthermore, both India and Russia are large customers, so only a part of Ceylon's 88,000 tons annual rubber yield will find its way to the United States.

South and Central America and Africa cannot be expected to increase greatly their contributions to the Allied Nations' rubber chest. At Belterra, Brazil, the Ford Motor Company's new plantations are shaping up, but they will not reach large production for another three or four years. The remainder of Brazil's rubber still comes from thousands of trees scattered through dense jungle. For the most part they must be hunted out and tapped by natives who then slowly coagulate and dry the raw latex on wooden paddles over smoky, open fires. Currently Brazil is producing about 10,000 to 15,000 tons of rubber a year. A 50 percent increase during the next two years would be remarkable but still of very little aid in the present emergency.

To this South American production the Firestone Tire & Rubber Company's African plantations in Liberia add another 7200 tons a year and the rest of Africa contributes about 10,000 tons annually. About 5000 additional tons may come from Central America, including Mexico's guayule.

Now let us look at some of the ways in which we are trying to replace this vital commodity.

RECLAIM—Although an important factor in this emergency, O.P.A. statisticians do not allow for supplies of scrap rubber in their table—probably because no one knows just how much recoverable scrap there is. Estimates have ranged from 200,000 tons to 10,000,000. Possibly 500,000 tons is closest to the mark, at least the current nationwide drive to bring in the scrap so indicates. Old casings and other scrap in the hands of dealers may raise the total substantially, however.

Rubber Soon Are Almost Nil

We must have rubber, not only for military machines but also for essential civilian needs upon which war production program depends. Can we do it?

We do know that the greatest reserve of scrap rubber consists of some 139,000,000 tires now on the wheels and spares of approximately 27,900,000 passenger cars still in service. But that is the most difficult reserve to tap.

The reason is that many car owners, realizing that the tires they have must last for the duration, are running on or holding in reserve tires that normally would be junked, and even buying them in the second-hand market. Last year American car owners took 40,000,000 worn tires off and replaced them with new casings. Many of them are still being guarded in private garages because their owners are reluctant to surrender a tire that might run another 1000 miles. But unless they are turned in, the supply of reclaim rubber will suffer seriously. In turn, the war effort will be hampered because reclaim is needed in practically every fabricated rubber product.

Last year reclaiming plants processed some 400,000 tons of scrap to produce about 350,000 tons of reclaim. Since Pearl Harbor, scrap collections have dropped to about half, and stocks have declined from a normal 11-months' supply to about enough for four months' operations. Every pound of reclaim for this year, 1943 and 1944 is needed—and is already earmarked—for military, export and essential civilian use.

GUAYULE—The O.P.A. tabulation does not specifically mention this and there is no way of telling whether it is included in the item "New Crude." But the fact is that authorities do not expect much help from this homely but useful little shrub for four or five years yet.

The guayule shrub will produce rubber. In fact, a healthy plant is about 20 percent rubber. Moreover, the guayule shrub is easy to process—just grind it up and wash out the rubber content. But to fill the country's usual requirements would take 3,250,000 tons of guayule. To plant that much, about 4,000,000 acres of land would be needed —and special land at that. It must be arid soil in a climate that is just right, not to hot or too cold, to dry or too moist.

Guayule grows wild over large sections of the Mexican plains and in some small areas of the United States. The shrub in Mexico could all be harvested this year if the necessary machinery, processing equipment and labor to go out into the wilds to gather the plants were available. Since they are not, we cannot expect more than an additional 1000 tons at the most of guayule rubber this year, according to estimates.

Recently Congress passed legislation to develop 75,000 acres of guayule in this country, and appropriated funds to carry on the owrk. In California the Intercontinental Rubber Company has done wonders with guayule cultivation on a large experimental scale. They know today where guayule will grow, what plants are best suited for different climates and what yield can be expected.

Unfortunately, they have also learned that one and two years after planting the plants have so little rubber that it hardly pays to harvest them. Three-year old plants yield a fair amount of rubber and the fourth year is the most economical time to harvest. Seeds planted in 1941 would yield as high as 1700 pounds of dry guayule rubber per acre by 1945—if we had the seeds. At the moment we have only about enough to plant 75,000 acres. By 1947 the yield would be quite good, but that will be too late to ease a rubber shortage that will be staring us in the face by the end of next year.

OTHER SHRUBS—Along with guayule the Russian dandelion should also be men-

WHERE OUR RUBBER MUST COME FROM—AND WHERE IT WILL GO

1942 Sources of supply	*long tons*		1943 Sources of supply	*long tons*	
Stock pile, Jan. 1, 1942	706,000		Stock pile, Jan. 1, 1943 (1942's carryover)	428,000	
New crude, less sinkings	453,000		New crude, less sinkings	61,000	
Synthetic production, U. S.	28,000		Synthetic production, U. S.	300,000	
Synthetic production, Russia	54,000		Synthetic production, Russia	72,000	
Total Supplies, 1942		1,241,000	Total Supplies, 1943		861,000
Requirements			**Requirements**		
U. S. Army and Air Corps	242,000		U. S. Army and Air Corps	356,000	
U. S. Navy and Maritime Com.	29,000		U. S. Navy and Maritime Com.	37,000	
Lend-Lease	82,000		Lend-lease	82,000	
Essential Civilian	150,000		Essential Civilian	120,000	
Other Countries	310,000		Other Countries	271,000	
Total Requirements, 1942		813,000	Total Requirements, 1943		866,000
Carryover at End of 1942		428,000	**Deficit at End of 1943**		5,000

WHERE THE RUBBER GOES

The rubber on—					
18 passenger cars.....	equals	rubber	needs	for	one heavy bomber *or* one medium tank
17,000 auto tires.....	"	"	"	"	one battleship
One month's output of baby pants	"	"	"	"	2800 liferafts
One year's output of elastic bands	"	"	"	"	1,500,000 gas masks *and* 500,000 raincoats
One year's output of garden hose	"	"	"	"	8500 75mm. gun carriages 6800 37mm. AA gun carriages 600 10-ton pontoon bridges

tioned. Soviet experts claim that this weed can be planted and harvested in the same year, sometimes yielding from 100 to 200 pounds of rubber per acre under special conditions. This is disputed by Department of Agriculture experts who believe 30 to 50 pounds an acre is closer to the Russian average. The Russians also report that dandelion rubber tires are about 60 percent as good as natural rubber casings, compared with a 75 percent rating for guayule. To date no results from experimental cultivation of the dandelion in this country have been made public, but both guayule and dandelion rubber have definite future possibilities.

Still another possibility is cryptostegia, a shrub under wide cultivation in Mexico and said to surpass both the guayule and Russian dandelion in rubber yield. It is being studied by the rubber authorities.

Synthetic Must Carry the Load

With 90 percent (Netherlands East Indies and Malaya) of the world's natural rubber sources actually in Japanese hands, 8 percent (Ceylon) seriously threatened and 2 percent (South and Central America and Africa) unable to increase production sufficiently in time, the task of supplying the Allied war machine rests squarely upon the infant synthetic rubber industry of the United States.

The present goal for the synthetic program is a capacity of 800,000 tons a year. On June 16th, Senator Guy M. Gillette declared that 1,500,000 tons of synthetic rubber will be necessary if both civilian and military needs are to be met. He also reported that the Rubber Reserve Company is planning a productive capacity of at least 1,000,000 tons and possibly 1,250,000 tons. Recalling that the synthetic rubber program was jumped from 40,000 tons to its present 800,000 ton status between September 1941 and April 1942, further upward revisions would not be a surprise, although they would add considerably to an already tremendous construction program. However, recent developments in the alcohol supply forecast, together with the new refining technique announced in May by Standard Oil Company (N.J.), bring even the figure of 1,500,000 tons of synthetic rubber within the realm of possibility.

Two important factors in the construction of this new synthetic industry, the greatest chemical engineering job ever undertaken, are manpower and materials. The men who build the new industry will have to compete with the Army and Navy and other war industries for the force to construct the plants and operate them. They will have to stand in line with shipbuilders, makers of tanks and airplanes for scarce materials, for machines and tools, pumps and compressors and generators, all of which are on zealously guarded priorities. Only superhuman efforts will prevent serious delays in construction.

The manufacture of synthetic rubber requires not only new plants for raw materials production but also new plants to polymerize those materials and work them into finished products. Anticipating production headaches the rubber industry is planning to use one experienced synthetic rubber technician to instruct and supervise every three new synthetic rubber workers.

Petroleum is not the only material from which butadiene can be made. It is also possible to obtain it from various agricultural products, of which the country has a large surplus.

Chemically speaking, the conversion of grains into alcohol, thence into butadiene and finally into synthetic rubber has been known to be possible for many years. Some years ago Standard Oil Development Company, as a part of its experiments on the production of butadiene from refinery gases did a considerable amount of work on certain steps of the alcohol process. The information gained during this development has been turned over by the company to the Department of Agriculture.

Secretary of Agriculture Wickard has reported that 80,000,000 bushels of surplus wheat alone can produce enough alcohol for 240,000 tons of rubber. On June 10th Arthur Newhall, Federal Rubber Coordinator, told a Senate agriculture subcommittee that the program of the Rubber Reserve Company calls for an annual production of 230,000 tons of rubber from 200,000,000 gallons of industrial alcohol at four new government-owned plants which are scheduled for completion by the middle of 1943.

Economic analyses of rubber manufacture made by Standard Oil Development Company in the years before the war confirmed similar studies of others which showed that under American cost conditions, alcohol could not compete with petroleum or natural gas as a source material for synthetic rubber. With the outbreak of the war in Europe the demand for alcohol in the United States steadily increased, and by Pearl Harbor users of alcohol for anti-freeze and chemical manufacturing purposes were instructed by the government authorities to reduce their consumption to the limit in order to free alcohol for munitions purposes.

Under these conditions there seemed no possibility of considering alcohol as a primary source of raw material for the government's large synthetic rubber program; for this reason the new synthetic industry was at first based entirely upon petroleum and chemical raw materials. As a reflection of the shortage and high cost of production, the price of agricultural alcohol had advanced to about 50 cents a gallon as against a normal price of about 20 cents.

More thorough examination of the grain alcohol problem by the authorities in Washington disclosed underlying facts which radically changed the surface picture presented by this apparent shortage and famine prices. For example, it was found to be feasible to divert a large amount of whiskey distilling capacity to the production of alcohol

HOW TO S-T-R-E-T-C-H YOUR TIRES

1. DRIVE UNDER 40
   If your tires are good for one year at 50 m.p.h., or better and you slow down to 30 and never drive faster than 35, your tires will last 12 months longer.
2. INFLATE TO WAR PRESSURES
   That means 30 pounds of air for tires that previously carried less than 30 pounds, and 35 pounds for tires that formerly took between 30 and 35 pounds. This will add another 3 months.
3. DON'T BE A COWBOY
   Avoid those leaping starts and bucking stops. You will add 3 months more.
4. KEEP THE SPARE IN SERVICE
   Put the best tire on the left front wheel and the worst in the trunk. Switch tires at least every three months. This will add another 4 months.
   RESULT—Your one-year tires now will last you for almost three years.

In addition, have your tires inspected regularly. Make sure the service man takes them off the rims, repairs all small breaks and leaks, puts new insides in leaking valves and replaces valve caps, straightens bent rims, aligns and balances wheels correctly and adjusts your brakes.

from grain, with only minor plant alterations. It also became generally recognized that, while the cost of fermenting alcohol, using grain at existing market prices, was in the neighborhood of 50 cents per gallon, actually there were large grain surpluses in the country, the continued carrying of which seemed to involve unnecessary and uneconomic expenditures for storage and chemical preservatives.

An interesting sidelight on this situation is contained in the following telegram received by the company from a local authority in one of the farming communities of Texas:

"Would appreciate your sending someone to investigate possibilities of establishing plant in this area for manufacture of alcohol from grain for purpose of making synthetic rubber. Millions of bushels of wheat being stored on ground. Storage capacity much overtaxed. Great surplus on hand."

Recognition of these underlying factors by the authorities cast a new light on the alcohol problem and resulted in a decision to substitute grain alcohol for petroleum products as a source of material for rubber to a greatly increased extent. It is to be hoped that as the result of the use of substantial quantities of grain alcohol as a supplementary source material for rubber, the program as a whole may be worked out in such a way as to reduce the requirement for critical construction materials, and to speed up the completion of the plants.

As might have been expected, there has been some tendency to make it appear that the petroleum industry was seeking to oppose the manufacture of rubber from grain. Nothing could be further from the truth. Every well-informed person knows that the maximum amount of petroleum raw material which could possibly be used in the manufacture of synthetic rubber is only a minute fraction of the total petroleum consumption of the country, whereas the effect on the petroleum consumption of any delay in production or insufficiency of production of rubber is a catastrophe. When a motorist cannot get tires, from $15 to $20 worth of gasoline sales are lost for lack of a dollar's worth of rubber. The value of the petroleum raw material used in the manufacture of a dollar's worth of synthetic rubber is about 10 cents.

Synthetic vs. Natural

How will synthetic tires act in service?

Well, in the first place, synthetics are not rubber. They differ chemically from each other and from natural rubber. At a glance you cannot tell an all-Buna-S tire from one made of natural rubber. In a test, however, the first tires made entirely of Buna did not measure up. While they did have superior abrasion resistance, the Buna tires tended to build up internal heat somewhat faster than those made of natural rubber. The same difficulty is experienced with tires made entirely of Butyl, Esso Laboratories' discovery, or of Neoprene, the du Pont product.

An all-Butyl tire, for example, is good for 10,000 miles if driven at not more than 40 miles an hour. That is a very definite limitation compared with the tires that have given American motorists 20,000 miles or more at ordinary speeds, and are capable of running for hours at 80 m.p.h. without serious overheating. But these initial difficulties with synthetic tires are steadily being overcome.

When it comes to material for recapping tires the spotlight has recently swung upon Thiokol, a product of the Dow Chemical Company. Dr. Willand H. Dow recently announced that his organization, in conjunction with the Thiokol Corporation, has perfected a process whereby 1,000,000 tires a month can be retreaded with Thiokol. Such a program could supply retreads for 3,000,000 passenger cars a year. Thiokol is not at present a part of the government program so it possibly may be made available to rejuvenate thinning civilian tires. Dr. Dow reported that such retreads probably will give 5000 miles of wear at speeds up to 40 m.p.h. Plants are understood to be under construction now, scheduled for completion in several months.

The Army Moves on Rubber

Although tires make up about 60 percent of the armed forces' rubber needs, there are other important uses for rubber in our war machine. Rubber is used in such items as warship deck mats and tank treads, gas masks, raincoats and boots, pneumatic life rafts, airplane bullet-proof tanks, de-icers, engine and instrument mountings, fuel lines and cabin insulation strips, tires and tubes, tires for gun carriages and for trucks, for jeeps and peeps.

Undersecretary of War Patterson, revealing that the Army had been forced to cut its own rubber consumption by 25 percent, pointed out that the rubber content of Army tires had been cut 12 percent and skid depth by 8 percent. One spare tire has been taken off vehicles normally carrying two, and units carrying one spare have had to give that up. Army rubber raincoats are fast becoming a thing of the past and the rubber content of boots and overshoes has been cut from 40 to 12½ percent, with only a few being used. Two-thirds of the crude rubber formerly used for light and medium tanks has been cut out and the amount used on the tracks of light tanks has been reduced 85 percent. The Undersecretary adds that the program has reached a point "where further savings will be difficult and may affect detrimentally the task of organizing our armed forces."

That is a sobering revelation for civilians. It is the challenge that the new synthetic industry must meet.

☆ ☆ ☆ ☆ WASHINGTON ROUNDUP ☆ ☆ ☆ ☆

By B. F. LINZ
Washington Correspondent

Senate Passes Mansfield Bill After Lucas Well Spacing Amendment Withdrawn

Government Subsidizes Costs; Lower East Prices Likely

Award Contracts for Big Inch Texas-Illinois Line

Senate and House Committees, Also PIWC Study Rubber

PIWC Still Unhappy Over East Coast Supply Situation

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OUTSTANDING events of a full week on the Washington oil front were announcement by Secretary of Commerce Jesse Jones that Defense Supplies Corporation will subsidize the industry for the increased cost of delivering oil into District 1, paving the way for revocation of the recently authorized 2½-cent increase on gasoline, and withdrawal in the heat of Senate debate of the Lucas amendment to the Mansfield waterway-development bill, which would nullify the M-68 restrictions on drilling.

With the Lucas amendment out, proponents of the measure were able to withstand attacks and succeeded in having the bill passed late in the afternoon, July 17.

Most consistently discussed subject of the week, however, was synthetic rubber, the making of which was demonstrated before a House subcommittee by Standard Oil Company (New Jersey) engineers. President W. S. Farish appeared before the House subcommittee to announce prospects of civilian rubber through the "quick butadiene" method; WPB Director Donald M. Nelson disclosed some of his rubber plans before a Senate agriculture subcommittee, and Secretary Jones testified before the Senate banking committee.

At the same time, PIWC also was discussing the rubber situation in its July meeting, with a report before it from its synthetic rubber committee, which also covered the "quickie" method of producing butadiene. The council also had up for discussion another supply report from its committee on petroleum economics, in which was painted a rather gloomy picture of the East Coast situation if tanker movement cannot be revived in a big way.

Ickes disclosed that the tank-car movement reached an all-time high during the week ended July 14, with an average delivery of 788,550 barrels a day, involving the use of 62,000 cars.

A general exception from the provisions of M-68 is being prepared for 84 California heavy oil fields, on a formula in course of development, as a result of the recent survey of OPC of the heavy oil situation in that state.

As contracts were awarded (see page 49) last week for construction of the 24-inch crude oil line from Texas to Illinois, it was revealed that the northern terminus will be at Norris City, Illinois, with an extension to Mt. Vernon to handle oil to be barged up the Ohio River. There probably will be a feeder line to Salem, originally tentatively picked as the terminus.

Reports that WPB was considering approval now of the allocation of the minimum amount of steel necessary to extend the "big inch" line to the East Coast was denied by Ickes July 16, who said it was "still an open question." The rumors probably were the result of increased agitation for extending the line because of shipping bottlenecks east of Illinois.

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MANSFIELD BILL: Without a record vote, after debate extending over two days, the Senate, July 17, passed the $93,000,000 Mansfield bill for inland waterway development and the construction of two pipe lines.

While final approval was secured without a formal count of votes, the measure earlier in the day narrowly escaped defeat when an amendment offered by Senator Bailey of North Carolina to strike out the waterway development received a tie vote and its adoption was prevented only by the vote of Vice President Wallace.

Another amendment offered by Bailey was approved, however, bringing the pipe line provisions into accord with those of the Cole Pipe Line Act. The amendment was suggested by the budget bureau in a letter from Acting Director Wayne Coy, in which it was pointed out that the whole project will have to be given further consideration at the time when it is proposed to inaugurate construction "in the light of then existing shortages of critical materials" needed for the work.

The bill got off to a bad start in the Senate debate, with Senator Bailey, chairman of the Commerce Committee in charge of the measure, attacking it as making no contribution "of real value or of instant need" to the war effort.

Pointing to the heavy tax bill under consideration in the House, Bailey called on the Senate to curb unnecessary expenditures.

Spacing Amendment Withdrawn

Bailey disclosed to the Senate that Senator Lucas of Illinois had withdrawn his amendment, which would have nullified the drilling restrictions of M-68, and the Illinois Senator later asserted he had taken this action because he had gained the point at which he aimed, in spurring the study of the Illinois field which Ickes had promised to undertake with a view to granting exceptions.

Strongest opponent of the measure was Senator Vandenberg of Michigan, while the legislation was supported principally by Senator Pepper of Florida, who originally proposed it in the Senate. Both Vandenberg and Bailey paid high tribute to J. R. Parten, director of OPC transportation division, who had submitted to the committee a report on the coordinator's pipe line program.

The strength of the administration was thrown behind the bill by Majority Floor Leader Barkley of Kentucky, who conferred with President Roosevelt on the measure July 17. Upon his return from the White House Barkley said the President favored enactment of the

measure and pointed out that it leaves to the President the determination of the extent and time of the waterway and pipe line improvements.

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PRICES: Decision of the Defense Supplies Corporation to assist in financing the increased cost of transporting oil into District 1 which recently impelled Price Administrator Leon Henderson to grant a 2½-cent price increase paved the way for revocation of the price-increase order and at the same time averted action by the Senate on amendment to the OPA appropriation bill prohibiting the spending of any money in administration of the order.

The amendment, submitted by Senator Russell of Georgia, was withdrawn by him after a conference with Secretary of Commerce Jones and officials of Reconstruction Finance Corporation July 15 at which it was agreed the government would bear the increased cost of the oil movement. His announcement on the floor of the Senate evoked a lengthy debate on the question of subsidies and the power of RFC to grant them, in which criticism was voiced of application of rationing and the price increase to states such as Georgia which are supplied by pipe line. The discussion at times became rather sharp, as when an assertion by Senator Reed of Kansas that the public of the entire country should not be required to contribute to save Eastern consumers money brought from Senator Russell the suggestion that if Topeka or Wichita were bombed the Kansas senator certainly would think it was a national matter and would not oppose the payment of any claim for destruction by war.

Members participating in the debate made it clear that they were opposed to subsidies, as was demonstrated a month ago with rejection of a subsidy bill, but would not oppose a general price increase throughout the country as a means of enabling the oil companies to recoup themselves for the increased war costs.

That this question is actively under consideration was disclosed by Senator Russell, who said legislation is being worked on which will provide for a tax, the proceeds of which will go into a special fund to defray losses and costs arising from the war.

Although it talked about the matter at length, the Senate evinced no desire to do anything about it. The 2½-cent increase provided in the OPA order is designed to reimburse East Coast suppliers for their transportation losses heretofore and to protect them against loss in the future, the Senate appropriations committee was told by Henderson, and it was planned to reduce the amount next year. Henderson admitted that the increase is more than the current addition to cost, but told the committee calculations were made of the deficit to the date of the order and an estimate of what would be the cost until the end of the year, and prorated the result over the amount of gasoline which would be sold between the time of the rising of the price and the end of that period.

By the end of the year, he said, the deficit will be wiped out and, if no new factors enter, a reduction can be made in the price of gasoline.

At a press conference July 16, Coordinator Ickes revealed that the decision to finance the transportation cost was reached before details of how the matter would be handled were worked out, particularly how the companies would be reimbursed for the $40,000,000 they have lost so far. Asked whether he considered the Connally bill for a war petroleum corporation still necessary in the light of Jones' action, Ickes pointed out that the measure covers more than a subsidy, but that it might not be absolutely necessary. However, he said when asked whether Jones also could take care of refinery operations in a similar manner, that is a legal question.

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PIWC: An exhaustive study of the new costs, operating complications, and dislocations which the oil industry is suffering as a result of the war was launched by the Petroleum Industry War Council at its July meeting at which, also, the rubber, supply and materials situations were major subjects of discussion and action.

The council adopted a number of resolutions, among them one submitted by its committee on transportation, urging WPB to consider the allocation of steel and other materials necessary to extend the "big-inch" pipe line all the way to the seaboard, the only manner, it was declard, in which the necessary large new volume of supply can be provided.

Other resolutions included a recommendation of the committee on marketing for issuance of a new order to replace the present limitation order L-70 and which will protect the small dealer from "raids" by large competitors, and a request that the district marketing committee chairmen furnish the committee on economics with information regarding sales trends in order that adequate data may be had with respect to current marketing conditions.

Featuring the councils considerations were reports of its committee on petroleum economics on the East Coast supply situation (see Eastern Winter Needs, page 14) and its synthetic rubber committee on the situation in that field (see New Synthetic Methods below).

The group also discussed the price situation and the proposal of the Defense Supplies Corporation to finance at least part of the additional cost of transportation to the East Coast, and a suggestion by B. L. Majewski of Chicago that the increased costs of the industry might be subsidized by the

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New Synthetic Methods Raise Hopes For Civilian Rubber

OUT of the badly muddled rubber situation came last week the first ray of hope for wartime motoring — the "quick butadiene" program developed by the oil industry in cooperation with Wright Gary, OPC director of refining, which W. S. Farish, president of Standard Oil Company (New Jersey), told a House Mines and Mining subcommittee July 15 will enable Standard alone to produce between 15,000 and 30,000 tons of additional butadiene this year.

This production, outside the government's 800,000-ton rubber program, together with Flexon, a new rubber substitute of the Butyl type, also outside the program, will give 200,000 tons more of synthetic rubber before the end of 1943, providing 34,000,000 more automobile tires than was expected, Farish told the subcommittee.

"This is good news," he commented, "but it does not warrant undue optimism on the part of American motorists."

(THE OIL WEEKLY of June 27, page 9, touched on this new development.)

Farish's announcement followed by 24 hours a report by Donald M. Nelson, chairman of WPB, to a Senate Agriculture subcommittee, in which he disclosed that actual production during the

first half of this year totaled 9400 tons, 1000 of it Buna S, 3600 Neoprene and 4800 Buna N and Thiokol.

For the last half of this year, an output of 22,900 tons is planned, including the first 300 tons of Butyl, and in 1943 production will be 73,300 tons in the first half and 264,700 tons in the final six months, a total of 338,000 tons.

Nelson stressed that the decision to go ahead with the present program for producing 700,000 tons of Buna S of which 200,000 tons would be from alcohol, 20,000 from benzene and the balance from petroleum, has not closed the doors against new developments.

WPB, he said, is giving encouragement to the development of the butylene-glycol process under test by the Northern Research Laboratories at Peoria, Illinois, and has raised the priority rating of the Publiker Corporation to permit construction of a 2000-pound-per-day pilot plant for development of its Polish process.

Nelson, however, strongly opposed any revision of the program which would divert critical materials to plants for the making of alcohol for rubber from grains. On the other hand, he said, without interference with present plans and schedules, the country actually may be getting more synthetic rubber from grain-base alcohol next year than from petroleum.

Another development in the situation was the appearance of Secretary of Commerce Jesse Jones before a Senate Banking and Currency subcommittee having before it a bill which would divert some 3500 tons of crude rubber annually for passenger car recaps and retreads. Testifying behind closed doors, Jones opposed the measure, dealing exhaustively with the current rubber situation which, he contended, does not permit the diversion of any crude whatever for non-essential uses.

The Houdry process for quick and inexpensive production of synthetic also continued to be the subject of discussion during the week.

Nelson, however, disposed of all new processes with the assertion that "the mere discovery of a process does not mean a plentiful supply of synthetic rubber; we must figure in the materials that would go into the plant to produce by the process and decide where these materials are needed most.

"We decided that we would rather go ahead with what we have than to wait for the perfection of new processes. We are doing that."

Farish's presentation before the House subcommittee included a demonstration of the actual manufacture of Buna S

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No Chance of Filling Eastern Winter Needs PIWC Reports

OVERLAND supplies for the East Coast area will run 52,000 barrels a day in excess of essential demand during the current quarter, but in the final quarter of 1942 will be 144,000 barrels short and in the first quarter of next year 140,000 barrels a day short of a minimum essential demand which makes no allowance for any pleasure driving, it was forecast by the PIWC committee on petroleum economics July 14 in a report submitted to the monthly meeting of the council.

Nothing less than the receipt of 300,000 barrels a day by tanker from now on will cover East Coast consumption, and while Joseph B. Eastman, director of defense transportation, was revealed to have informed a Senate appropriations committee that 200,000 barrels a day is now being delivered by tankers moving under convoy, the committee pointed out that there is no guarantee that the movement can be maintained.

As the committee report was made public by the war council, Senator Joseph C. O'Mahoney of Wyoming called for the construction of a pipe line to the Atlantic Coast and the sinking of additional wells as "essential steps" toward winning the war. O'Mahoney held that drilling should be encouraged particularly on the public lands; however, he admitted that increased drilling called for additional steel supplies and this, in turn, for greater ore production which, he said, also should come largely from the public domain.

Big Line Extension Needed

Outstanding conclusions of the committee's report were:

Net gain to the East Coast from the 300,000-barrel "big-inch" pipe line will not exceed 100,000 barrels a day, because of transportation difficulties between Illinois and the seaboard.

Pipe-line projects, other than the trans-Florida line, in the Mansfield inland-waterway development bill would either afford little relief or would represent an uneconomic use of critical materials in comparison with an eastward extension of the "big-inch" line.

There is no chance of building up East Coast supplies to assure adequate heating-oil supply next winter, and the minimum essential demand represents a deficiency of 160,000 barrels a day from what would be required to avoid severe consumer hardship.

Gasoline consumption in District 1 is 140,000 barrels a day higher than the estimate of essential demand, due to the failure of the rationing system to function as planned and the exclusion of the western section of the district from the rationed area.

Strict rationing will continue to be necessary.

The committee emphasized that its estimate of supply and demand took into account the maximum use of all means of transportation other than tanker, present and scheduled, including tank cars, pipe lines and barges, and represents a careful calculation of minimum essential demand for both gasoline and fuel oils.

It was assumed that ordinary passenger-car driving will be reduced 60 percent from normal, which makes no allowance for any pleasure driving and a reduction of 30 percent from normal in the use of kerosine and fuel oils for heating.

On the basis of these allowances, supply and demand for the current and two coming quarters are estimated as follows:

	Third Quarter 1942	Fourth Quarter 1942	First Quarter 1943
Railway tank cars.	812,000	797,000	845,000
Barges and Great Lakes Tankers ..	143,000	185,000	198,000
Pipelines	152,000	158,000	188,000
Oil Production in East (including natural gasoline)	82,000	88,000	89,000
Total Supply (without tankers) .	1,189,000	1,228,000	1,320,000
Essential Demand .	1,137,000	1,372,000	1,460,000

These figures on essential demand, it was explained, include only estimated consumption necessary for the war effort. They do not include 160,000 barrels daily of demand in an intermediate category which it is estimated should be supplied to avoid severe consumer hardship, and compare with about 1,600,000 barrels per day "normal" demand on an unrestricted basis.

Line Discounted

"For the first quarter of 1943, the figures include the amounts which will be made available by the new pipe line from East Texas to a point in Southern Illinois which, with special effort, should be completed by that time," the report stated. "Although this pipe line will carry 300,000 barrels a day as reported, only about one third of this will represent net gain to the East. By the time the line is built, it is probable that

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Extraordinary Half Year of Shifting to War Footing

Rising oil activities curtailed sharply by war disturbances . . . Industry does good job of adjusting self . . . Future now depends mostly upon availability of rubber for civilian use

By WARREN L. BAKER, Editor

THE petroleum industry, like most businesses, during the first six months of the year felt the powerful influences of a sudden actual war against already equipped and trained enemy forces and also the consequent necessity of discarding "business-as-usual" policies for an all-out self-preservation national effort. The full impact of these conditions on oil has been exceptionally great, bringing quick and drastic reversal and dislocation of the industry's economic trends, operating facilities and practices. Sharp reductions and changes of character took place in consumption, production, drilling and refining activity, in contrast with the heretofore steady and sizeable expansions that had carried operations to all-time peak levels during the preceding year. In addition, there were other far-reaching dislocations, and as a result the industry found itself confronted with the necessity of almost completely altering its established operating setups and ideas.

With the surprises of this interesting period so recent as to be well remembered, the industry entered the second half of this extraordinary year with uncertain prospects and widely divided opinion as to its immediate future.

Basic Troubles

Primary basic troubles of petroleum are due to loss of normal tanker transportation to the East Coast, the result of German U-boat attacks and diversions of tankers to military duties, and an acute shortage of rubber caused by Japanese conquest of Far East raw supply sources. Cure these ills, and petroleum consumption would boom to such heights it is likely the industry would have difficulty in producing sufficient oil under restricted drilling imposed by the steel shortage.

The first of these two basic troubles, that of transportation to the East, created a scarcity that brought gasoline rationing to the Atlantic Seaboard, and at the same time made it necessary to curtail production and refining in Texas, Louisiana and New Mexico. However, this difficulty can and will be solved. Closing its eyes to expense, the industry has boosted railroad shipments from 100,000 barrels per day to more than 700,000 barrels daily during the past six months. Despite considerable enlargement of pipe line facilities already, currently the industry is undertaking a cooperative $30,000,000 pipe line relocation, revamping and expansion program. These developments, coupled with the influence of the planned and approved 24-inch Texas-Illinois pipe line, will provide means of getting additional oil to the famined East Coast by the end of the year, and thus producers and refiners in the Southwest look forward to enlarged demands.

However, the rubber supply situation, which already has resulted in establishment of a tire-conservation-minded public and is a primary consideration in talk of nation-wide gasoline rationing, is both a far more serious situation and one more difficult to solve. Not only oil, but the nation as well, faces the greatest economic emergency. All the effort, planning, construction, money and sacrifice expended on the problem have not been enough. The hard facts are that the program for 800,000 tons of annual synthetic rubber manufacturing capacity 700,000 tons from petroleum, cannot be fiinshed quickly enough to provide a supply sufficient to keep civilian cars on the road, for it will be severely pressed to furnish the minimum needs of military operations. Wearing out of tires and inability to replace them is expected to commence forcing cars off the road in early 1943, and to become progressively more acute as time passes. Thus the outlook is dark, for just when petroleum has solved its own product transportation problem, the more serious and sinister difficulty of rubber shortage will begin to be felt. Consequently, the future of oil is completely wrapped up in the uncertainties of the rubber question. Solve it, and the outlook of petroleum is bright — fail to solve the problem in time, and the outlook is dark for both oil and a nation dependent upon transportation for the building of a war machine and maintenance of civilian economy.

The industry entered 1942 with demand, production, drilling and refining operations all at near record levels. By March all had tumbled to the 1941 level, and thereafter continued below a year ago. Some improvement in all phases was noted in June over May and April levels, testifying that the outlook for the remainder of the year might be slightly better than the low of March April and May. However, beyond that period nothing seems certain except that the need for war products will have increased materially, causing considerable activity even if civilian consumption drops to exceedingly low levels.

Demand Rises Then Slumps

Total demand for all oils increased over 11 percent in the first quarter of 1942 compared to the same period of 1941, but had dropped to between 1 and 2 percent below last year in the second quarter, and probably will show a decline of about 7 percent below last year in the third quarter of 1942, according to estimates of the United States Bureau of Mines.

The decrease in domestic motor fuel demand has been the major factor in reduced usage, as demands for most other products showed substantial gains. By April demand for motor fuel had declined to 52,200,000 barrels, or 8 percent below a year ago. This marked the first time since 1938 that the demand for any month had not surpassed that of the same month in the previous year. The largest factor in the decline was a

Changes in United States Stocks of Crude and Principal Products

(Figures indicate barrels)

(Sources: Crude stocks, Bureau of Mines; all other figures American Petroleum Institute.)

STOCKS OF:	June 28, 1941	Jan. 3, 1942	June 27, 1942	PERCENT CHANGE In Year	PERCENT CHANGE In 6 Mos.
Gasoline	91,461,000	92,987,000	88,611,000	— 3.1	— 4.7
Gas Oil & Distillate	35,732,000	49,357,000	32,851,000	— 8.1	— 33.4
Residual Fuel Oil	92,896,000	95,857,000	77,304,000	— 16.8	— 19.4
Crude Oil	259,399,000	244,440,000	253,364,000	— 2.3	+ 3.6
Total	479,488,000	482,641,000	452,130,000	— 5.7	— 6.2

drop in the Atlantic Seaboard area due to application of restricted deliveries to filling stations, with tire conservation elsewhere becoming an increasingly important influence.

By June gasoline rationing and automobile and tire restrictions had resulted in depressing gasoline consumption to 11 percent under that of a year ago, and this is expected to increase to 18 percent in July as the same factors eliminate the usual summer peak in gasoline demand.

Principal hope for improved consumption rest in enlarged use of aviation gasoline, fuel oil, toluol and operation of synthetic rubber plants. The first three are certain to continue their expansion during the remainder of the year, but the influence of synthetic rubber plants will not be felt for another year or more, as the majority will not be in operation before that time.

Of help will be the expanded overland transportation facilities to the East Coast, which influence will be felt gradually during the next six months but mostly in the last month of the year or even a little later. Meanwhile, continued heavier restriction of driving in all other sections to save tires probably will offset the gain in the East. Therefore, the main benefit from the enlarged and revamped pipe line systems will be in enabling the industry to get war products and fuel oil to satisfy these growing demands.

Refinery Work Shrinks and Changes

Consumption not only shrunk but also took on an entirely new complexion, the demands for aviation gasoline, fuel oil, and toluol expanding rapidly, while use of motor gasoline by civilians was experiencing its sharp reduction. This made it necessary that refiners not only build new plants to produce aviation gasoline and toluol, but also alter operations so larger yields of fuel oil and as little gasoline as possible was produced instead of as much as possible of the latter.

To meet the situation, refiners did an excellent job, reducing crude runs to stills and making appreciable adjustments in product yields. Although the first two months of the year saw crude runs exceed 1941 levels by approximately 6.5 percent, they tumbled downward in March and April and continued at this low level. In view of 1941 gains in these months, May and June of the current year ran 10 percent under the previous year's rate. Consequently, the overall volume of oil charged to stills during the first half of 1942 was 16,630,000 barrels, or 2.5 percent, less than in the corresponding period of 1941.

The yield of motor gasoline, which in January constituted 44.6 percent of the volume of crude charged to stills, was reduced to below 40 percent by April, and the output of residual fuel oil was up proportionately, having risen from 24.7 to 28.1 percent.

Gasoline Surplus Avoided

Refiners did such an amazing job of reducing runs and adjusting yields that they not only averted an expected serious oversupply of motor fuel but actually improved the inventory position of this commodity by achieving substantial withdrawals from storage in the face of sharply decreased consumption.

Stocks of gasoline on January 1 this year totaled 92,987,000 barrels. At this level they were approximately 1,500,000 barrels above that date a year previous. By March 14, gasoline stocks had climbed to an all-time peak of 107,229,000 barels, at which level they were 7,502,000 barrels above the 1941 peak. With gasoline consumption reduced by East Coast restrictions and lessened travel by tire conservation minded motorists, gloomy pictures were painted of the probable necessity of injecting refined motor fuel back into the ground as refineries of necessity continued operating to make essential war products. But the combination of decreased crude runs and reduced gasoline yields during the next four months averted such conditions, and June 27 found stocks of motor fuel down to 88,611,000 barrels, or most amazingly 3.1 percent under the 1941 level.

The poor prospects for gasoline consumption, together with the enlarged demand expected for other products, will result in refiners continuing to attempt to get as little motor fuel and as much other yields as possible throughout the summer. This should result in further reductions in gasoline inventories, and thus somewhat prepare the industry for the possible drastic curtailment ahead if motorists cannot procure tires.

Fuel Oils Critical

Despite higher yields of residual fuel, the demand for this product increased so greatly that stocks had been reduced to critical levels. Inventories of heavy fuel oil on June 27, after exceptionally large withdrawals in the past 6 months, were 16.8 percent under a year ago in totaling 77,304,000 barrels as compared with 92,896,000 barrels on this date in 1941.

Gas oil and distillate, or light fuel, oils were in a similar position to the heavier fuels. Stocks of lighter grades were 8.1 percent under a year ago after declining 33.4 percent since the first of the year.

With demand for fuels due to continue to expand, it appeared that the industry was going to be hard put to

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United States Refinery Operations

MONTH	RUNS TO REFINERY STILLS: 1942 Monthly Total	1941 Monthly Total	Percent Change	REFINERY YIELDS OF MAJOR PRODUCTS — GASOLINE OUTPUT: Volume Produced 1942	Volume Produced 1941	Percent of Runs 1942	Percent of Runs 1941	DISTILLATE FUEL: Volume Produced 1942	Volume Produced 1941	Percent of Runs 1942	Percent of Runs 1941	RESIDUAL FUEL: Volume Produced 1942	Volume Produced 1941	Percent of Runs 1942	Percent of Runs 1941
January	119,032,000	110,683,000	+ 7.5	53,049,000	47,345,000	44.6	42.8	16,902,000	17,018,000	14.2	15.4	29,405,000	27,958,000	24.7	25.3
February	105,776,000	100,445,000	+ 5.3	45,232,000	43,529,000	42.8	43.3	15,194,000	14,732,000	14.4	14.7	27,254,000	25,979,000	25.8	*25.9
March	110,565,000	111,059,000	— 0.4	46,238,000	48,176,000	41.8	43.4	16,214,000	15,326,000	14.7	13.8	28,095,000	27,858,000	25.4	25.1
April	104,882,000	111,106,000	— 5.6	41,843,000	48,511,000	39.9	43.7	14,002,000	14,692,000	13.4	13.2	29,440,000	27,310,000	28.1	24.6
May	106,968,000*	119,435,000	— 10.4	†	52,789,000	†	44.2	†	15,546,000	†	13.0	†	28,393,000	†	23.8
June	104,810,000*	115,935,000	— 9.6	†	51,618,000	†	44.5	†	14,697,000	†	12.7	†	28,255,000	†	24.4
Total	652,033,000	668,663,000	— 2.5	.....	291,968,000	...	43.7	.....	92,011,000	...	13.8	.....	165,753,000	...	24.8

* Runs to stills for last two months of 1942 figured from A.P.I. weekly reports, all other data from U. S. Bureau of Mines monthly reports. † Data not yet available.

Year's Well Completions Likely to Exceed Predictions

RESULTS the first six months of the year indicate that 1942 is likely to be a more active drilling period than has been generally anticipated. Even more drastic curtailment than the lowest level yet reached since promulgation of M-68 and P-98 must take place during the last half unless the annual total is to exceed predictions of 16,800 to 19,300 wells; for 11,090 tests already have been completed during 1942.

Encouraging is the increased completion rate that has prevailed during the last two months. The industry apparently has recovered somewhat from the exceptionally sharp reductions that took place during the first four months of the year. The average number of wells completed weekly, which had dropped from the fairly high level prevailing in January of 551 to a low of 341 per week by April, in May climbed back to 394 per week and lost little ground in June when completions averaged 386 per week.

Weekly Average Completions

MONTH	1942	1941	1940
January	551	493	563
February	530	502	503
March	351	494	551
April	341	594	554
May	394	582	636
June	386	633	655

Even if the completion rate for the last half of the year should be only at the low April level, the annual total would be 20,000 wells. That such a total might be reached, and perhaps surpassed, is shown by the recent tendency for drilling to exceed this level. Moreover, rigs in operation the first of July were slightly higher than either June or May, indicating that the completion rate in July should be a little better than the record for the two preceding months. Rigs in operation on July 1 this year numbered 2905, in contrast with 2868 on June 1 and 2859 on May 1.

Steel and Spacing

The future course of drilling naturally depends upon restrictions imposed by the steel shortage and spacing regulations, and this is obscured by reoccurring reports that effective August 1 more stringent priority ratings are in prospect. The resulting increased difficulties in procuring equipment may have a harmful influence on drilling,

Completions

STATE OR DISTRICT	MONTHLY COMPLETIONS: Total: Year Ago, June, 1941[2]	Total: Month Ago, May, 1942[3]	Total: Latest Data (June, 1942)[1]	Details for June, 1942: New Wells Drilled for Oil or Gas: Oil	Gas	Dry	Others[4]	Old Wells Drilled Deeper	Total Footage Drilled	CUMULATIVE COMPLETIONS: FIRST 6 MONTHS: Total: 1941	1942	Percent Change	Details for 6 Months of 1942: New Wells Drilled for Oil or Gas: Oil	Gas	Dry	Others[4]	Old Wells Drilled Deeper	Total Footage Drilled
Alabama	1									1	3	+ 200.0			3			4,697
Arkansas	17	8	14	10		4			78,354	80	66	— 17.5	43		22	1		382,317
California[9]	96	56	43	32	2	9			155,805	533	368	— 30.9	217	7	126		18	1,925,493
Colorado	2		1	1					7,198	8	5	— 37.5	2		3			29,718
Georgia	1									1	2	+ 100.0			2			6,519
Illinois[6]	423	[10]178	169	94	1	69		5	455,134	1,658	932	— 43.7	509	6	345	16	56	2,347,520
Indiana	54	22	42	9	2	31			73,180	250	194	— 22.4	73	12	99		10	319,876
Iowa	1									2								
Kansas	236	102	160	93	7	56		4	512,217	1,043	786	— 24.6	425	36	280	4	41	2,367,504
Kentucky	34	9	15	2		13			23,841	146	72	— 50.6	25		45	1	1	97,741
Louisiana	147	86	83	57	2	23	1		616,808	670	515	— 23.1	336	12	163	4		3,391,135
North Louisiana	52	47	32	27		4	1		141,649	243	231	— 4.9	150	4	76	1		906,712
South Louisiana	95	39	51	30	2	19			475,159	427	284	— 33.4	186	8	87	3		2,484,423
Michigan	74	46	81	35	12	34			203,007	387	344	— 11.1	185	31	127		1	879,212
Mississippi	20	5	8	1		6	1		40,460	86	65	— 24.4	31		33	1		337,137
Missouri[7]	6		1		1				278	32	16	— 100.0		3	13			7,522
Montana	32	14	18	14	2	2			46,225	98	83	— 15.3	58	15	10			195,964
Nebraska	4	8	1	1					2,468	41	25	— 39.0	11		13		1	56,240
New Mexico	27	33	38	29	1	7		1	109,804	168	204	+ 21.4	142	7	50		5	564,235
New York	110	78	105	61			44		138,497	391	572	+ 46.2	320	2		250		725,719
Ohio	174	67	97	22	48	21	4	2	214,139	787	539	— 31.5	112	241	167	7	12	1,241,775
Oklahoma	228	73	126	51	5	52	9	9	392,159	1,015	757	— 25.4	331	51	282	19	74	2,215,662
Pennsylvania[8]	389	353	377	172	31	11	159	4	626,430	1,913	1,968	+ 2.9	924	144	48	837	15	3,261,378
Tennessee[9]	1	2	1			1			4,219	9	7	— 22.2	1	2	4			10,317
Texas	1,019	378	479	282	15	156	13	13	1,974,324	4,745	3,180	— 33.0	2,058	80	898	57	87	13,051,959
East Texas Border Co.'s	1	4	1	1					6,050	13	7	— 46.1	2	2	3			34,687
East Texas Field	52		2	1		1			7,253	317	15	— 95.2	9		5	1		50,771
Rest of Eastern Texas	68	24	26	16		7	1	2	126,464	254	200	— 21.2	129	3	57	8	3	980,965
North Texas	255	52	94	30		50	9	5	247,625	1,143	525	— 54.0	242	1	234	16	32	1,299,150
West Central Texas	49	28	37	12	3	21		1	83,311	282	201	— 28.7	78	13	101		9	432,218
West Texas	232	112	121	93	3	20		5	482,657	785	912	+ 16.1	747	11	121		33	3,819,890
Texas Panhandle	61	32	22	18	4				66,733	276	232	— 15.9	188	30	9		5	691,347
Gulf Coast, Upper	93	37	48	36	2	10			304,191	371	272	— 26.6	189	6	72	5		1,782,455
Gulf Coast, Lower	114	55	82	53	3	23	3		498,057	587	491	— 16.3	326	11	126	25	3	2,922,001
Southwest Texas	75	23	36	20		16			120,366	408	255	— 37.5	126	2	123	2	2	854,955
South Central Texas	19	11	10	2		8			31,617	119	70	— 41.1	22	1	47			183,520
Virginia			1	1					1,113		1		1					1,113
West Virginia	57	54	67	8	42	9		8	202,253	324	349	+ 7.7	52	224	43		30	1,032,496
Wyoming	16	3	4	3			1		12,192	56	37	— 33.9	25	2	8	1	1	133,634
Total United States	3,169	1,575	1,931	978	171	504	232	46	5,890,105	14,444	11,090	— 23.2	5,881	875	2,784	1,198	352	34,586,883

[1] Wells completed in 5 weeks, or 35 days, ended June 27, 1942. [2] Wells completed in 5 weeks, or 35 days, ended June 28, 1941. [3] Wells completed in 4 weeks, or 28 days, ended May 23, 1942. [4] Water input, gas injection, distillate, and salt water disposal wells. [5] California figures from American Petroleum Institute except for June, 1942. [6] Data on new wells from Illinois Geological Survey beginning January, 1942, except for June. [7] Figures from Missouri Geological Survey. [8] Bradford and Kane-Clarendon, Pennsylvania, figures from The Producers Monthly. [9] Figures from Tennessee Division of Geology. [10] Illinois statistics for May revised to embody State Geological Survey data on new wells.

United States Monthly Well Completions

MONTH	1942	1941	Percent Change
January	2,287	1,980	+ 15.5
February	2,046	2,033	+ 0.6
March*	1,757	2,492	— 29.5
April	1,494	2,381	— 37.2
May	1,575	2,389	— 34.0
June*	1,931	3,169	— 38.8
Total	11,090	14,444	— 23.2

* March and June cover 5 week period, other months cover 4 weeks.

but can apply to only the last five months of the year.

On the other side of the picture is relaxation of spacing regulations for specified conditions in Illinois and for gas wells in the Eastern States, Northeast Oklahoma and Eastern Kansas. In addition, OPC has seen fit to grant spacing exceptions to a number of fields in other localities, some of which are just beginning to bear fruit. Consequently, it would appear that any future reduction in drilling depends almost entirely upon obtaining necessary materials.

Completion of 11,090 wells during the first 6 months of 1942 represented a reduction of 354, or 23.2 percent, from the 14,444 wells finished during the corresponding period of 1941. Henceforth, 1942 will lag farther and farther behind the 1941 trend, for last year at this period drilling had just started its spurt that was to carry it upward to near all-time record levels, completions in June having jumped to 3169, a gain of almost 800 over May. This year the gain in June over May was approximately 350, and thus the current June was 38.8 percent behind a year ago. whereas May had been only 34 percent under that month of 1941, and earlier months even less; with the first two months being more active than the same months of a year ago.

United States Rigs in Operation

(Includes those drilling, rigged up and shut-down on first of each month)

MONTH	1942	1941	Percent Change
January	4,585	3,894	+ 17.7
February	3,816	3,814	+ 0.1
March	3,067	3,952	— 22.4
April	2,979	4,121	— 27.7
May	2,859	4,289	— 33.3
June	2,868	4,335	— 33.8
July	2,905	4,598	— 36.8

More Dry Holes

A smaller percentage of the 1942 completions have been oil wells and a larger proportion have been dry holes. This year 53 percent of the 11,090 completions have been finished oil producing wells, whereas 60.1 percent were so completed last year. The percentage of dry holes rose to 25.1 percent in 1942 in contrast with 22.2 percent in 1941. Although the number of gas wells completed dropped from 1094 to 875, the percent of total completions increased from 7.6 to 7.9 for this year. There has been an enlarged percentage in deepening of wells and drilling of input wells this year. This has been especially true of water-input wells, the number of these operations completed totaling 1097 the first half of 1942 against 1025 in 1941.

Among the six major producing states and drilling states, Illinois suffered the greatest decline. Completions here dropped from 1658 to 932, a 43.7-percent decrease for the six months. Texas came next, registering a decrease of 33 percent in dropping to 3180 completions from its 1941 rate of 4745. However, Texas still was responsible for 28.7 percent of the national total. All districts in the state recorded a decline in operations, except West Texas, where activity was 16.1 percent greater than a year ago. Most drastic drop was in the 12-year-old East Texas field, where M-68 40-acre spacing finally brought a close to drilling. As a result there were but 15 completions in the field, or 95.2 percent less than a year ago.

California had a 30.9 percent decline in completions, Oklahoma had 25.4 percent fewer, Kansas 24.6 less, and Louisiana a 23.1 percent reduction.

A few states, besides strictly wildcat provinces, have not been disturbed by M-68 regulations. New Mexico, where wide spacing has been in vogue for years, turned up with an increase of 21.4 percent, having 204 in contrast to 168 tests completed lsat year. In the Eastern area, Pennsylvania's 1968 completions, second only to Texas in number, were 2.9 percent larger than at the 1941 rate, while New York's 572 completions were 46.2 percent greater. West Virginia had 7.7 percent more completions in finishing 349 tests.

Breakdown of U. S. Completions First Six Months of 1942 and 1941

Classification	1942	1941	Percent of Total 1942	Percent of Total 1941
New Oil Wells	5,881	8,688	53.0	60.1
New Gas Wells	875	1,094	7.9	7.6
New Dry Holes	2,784	3,203	25.1	22.2
Old Wells Deepened	352	358	3.2	2.5
Water Input Wells	1,097	1,025	9.9	7.1
Gas Injection Wells	35	46	0.3	0.3
Salt Water Disposal Wells	23	30	0.2	0.2
Distillate Wells	43	*	0.4	.....
Total	11,090	14,444	100.0	100.0

* Distillate wells in 1941 included in gas or oil wells.

Rigs in Operation Show Another Small Gain

STATE OR DISTRICT	TOTAL RIGS IN OPERATION (Drilling, Rigs Up, Shut Down) Year Ago, July 1, 1941	Month Ago, June 1, 1942	Now, July 1, 1942	Percent Change From Year Ago	DETAILS OF JULY 1, 1942 FIELD ACTIVITY Rigs in Operation: Drilling	Rigs Up	Shut Down	Prelim. Activity: Derricks	Locations	Total Operations
Alabama	5	5	5	.....	2	.....	3	.....	.....	5
Arizona	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arkansas	29	33	20	— 31.0	19	1	.....	1	4	25
California	284	186	194	— 31.6	103	38	53	.....	75	269
Colorado	27	27	23	— 14.8	7	1	15	.....	2	25
Florida	2	.....	4	+ 100.0	2	.....	2	.....	.....	4
Georgia	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois	353	199	213	— 39.6	137	36	40	.....	51	264
Indiana	68	48	49	— 27.9	40	4	5	.....	45	94
Iowa	3	1	1	— 66.6	.....	.....	1	.....	.....	1
Kansas	263	173	196	— 25.4	177	14	5	12	21	229
Kentucky	42	22	23	— 45.2	22	.....	1	.....	.....	23
Louisiana	200	143	120	— 40.0	93	9	18	10	114	244
North Louisiana	77	63	42	— 45.4	26	3	13	1	18	61
South Louisiana	123	80	78	— 36.5	67	6	5	9	96	183
Michigan	154	127	123	— 20.1	77	12	34	21	20	164
Mississippi	23	3	6	— 73.9	2	3	1	1	4	11
Missouri	14	5	6	— 57.1	1	.....	5	.....	1	7
Montana	59	56	64	+ 8.4	29	10	25	.....	4	68
Nebraska	25	22	25	.....	12	1	12	.....	1	26
New Mexico	116	103	96	— 17.2	57	3	36	.....	10	106
New York	96	130	145	+ 51.0	99	31	15	10	21	176
North Dakota	.....	1	1	.....	1	.....	.....	.....	.....	1
Ohio	309	171	181	— 41.4	127	20	34	10	29	220
Oklahoma	355	207	217	— 38.8	156	30	31	6	31	254
Oregon	3	2	2	— 33.3	.....	.....	2	.....	.....	2
Pennsylvania	392	439	429	+ 9.4	307	50	72	24	72	525
South Dakota	.....	1	2	.....	.....	.....	.....	.....	.....	2
Tennessee	8	4	3	— 62.5	1	1	1	.....	2	5
Texas	1,422	645	631	— 55.6	492	42	97	39	362	1,032
East Texas Border Co.'s	14	3	6	— 57.1	6	.....	.....	.....	2	8
East Texas Field	17	1	1	— 94.1	1	.....	.....	.....	.....	1
Rest of Eastern Texas	64	43	54	— 15.6	35	6	13	3	5	62
North Texas	211	94	87	— 58.7	72	.....	15	8	107	202
West Central Texas	92	60	53	— 42.3	36	5	12	1	15	69
West Texas	409	184	161	— 60.6	130	9	22	10	90	261
Texas Panhandle	130	37	43	— 66.9	32	5	6	2	9	54
Gulf Coast, Upper	142	66	63	— 55.6	47	5	11	7	79	149
Gulf Coast, Lower	183	92	95	— 48.0	84	5	6	2	21	118
Southwest Texas	99	41	25	— 74.7	12	3	10	3	12	40
South Central Texas	61	24	43	— 29.5	37	4	2	3	22	68
Utah	7	5	3	— 57.1	1	.....	2	.....	.....	3
Washington	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia	255	64	65	— 74.5	49	5	11	4	9	78
Wyoming	74	46	58	— 21.6	35	3	20	2	2	62
Total United States	4,598	2,868	2,905	— 36.8	2,048	314	543	140	880	3,925

Wells Deeper and Footage Off Less Than Completions

ALTHOUGH the number of wells completed in the United States during the first half of 1942 represented a decline of 23.2 percent compared with the preceding year, the amount of footage drilled dipped but 19.9 percent as the average depth per well increased from 2987 feet to 3118 feet.

The total of 11,090 tests completed the first six months of this year involved drilling 34,586,883 feet of hole, whereas 14,444 completions for the same period of 1941 totaled 43,155,572 feet of hole. The 3118-foot average depth per completion recorded so far in 1942 is the second highest on record, being exceeded only by the 3131 feet in 1938.

If drilling activity maintains the same pace during the last six months of 1942, the year will see approximately 70,000,000 feet of hole drilled. This would represent the smallest amount of footage drilled since 1935. However, the uncertainity of the picture makes it difficult to predict what is likely to occur during the last half of the year.

Texas continued to furnish the bulk of the nation's drilling footage, although its decline in both completions and footage was well above the national average. Completions of the state were down 32.9 percent from the 1941 rate, but footage dropped only 24.8 percent as the average well depth increased from 3657 feet to 4104 feet. Total footage drilled in the state the past six months was 13,051,959 feet, or 37.7 percent of the amount drilled in the United States. Every region in the state showed a loss in both completion and footage, but the heaviest was in the East Texas field. Due to 40-acre spacing requirements imposed by M-68 drilling in the world's largest field practically came to a standstill after 12 years of intensive work. Completions dropped 95.2 percent and footage 95.5 percent from the 1941 level. Smallest drop was in West Texas, where footage was down only 6.3 percent. The drilling of 3,819,890 feet of hole in West Texas permitted this area to continue to lead the state in both completions and footage.

Second most active state from the standpoint of footage was Louisiana with 3,391,135 feet of hole, achieved largely because of its average depth per hole of 6584 feet, the greatest in the nation. South Louisiana had the remarkable average depth of 8748 feet per hole.

Average Drilling Depths

(Data revised back through 1913 to show Bradford, Pennsylvania, completions on **The Producers' Monthly** basis.)

YEAR	Wells Completed	Footage Drilled	Average Depth per Well
1925	25,406	73,677,400	2900
1926	28,995	81,186,000	2800
1927	22,301	66,903,000	3000
1928	19,964	59,892,000	3000
1929	23,463	67,925,285	2895
1930	19,848	57,557,200	2900
1931	11,716	34,259,110	2924
1932	14,290	43,033,422	3011
1933	13,145	38,464,500	2926
1934	20,793	55,103,538	2650
1935	24,273	66,632,035	2745
1936	28,546	80,068,851	2805
1937	33,945	101,105,230	2979
1938	28,060	87,841,493	3131
1939	27,658	84,114,990	3037
1940	30,656	93,971,162	3065
First Half:			
1940	15,007	43,658,934	2909
1941	14,444	43,155,572	2987
1942	11,090	34,586,883	3118

The drilling of 1968 tests enabled Pennsylvania to rank third in total footage drilled, although the average depth per well was but 1657 feet. A total of 3,261,378 feet of hole was drilled, a decline of but 0.8 percent from the corresponding period of 1941.

Kansas took over fourth place in footage with 2,367,504 feet. Illinois, which a year ago was in second place, fell to fifth as a 37-percent decline dropped footage in the state to 2,347,520 feet. With the exception of California's 37.2-percent drop, Illinois' reduction was the greatest among the major states.

Several states showed increased footage, however, they were among the smaller and less active territories. Included in the group were: Alabama, Arkansas, Colorado, Georgia, Michigan, New Mexico, New York and West Virginia. With the exception of Colorado and Michigan, completion of a larger number of wells was responsible for the footage gain.

Footage

STATE OR DISTRICT	COMPLETIONS 1941 1st Half	COMPLETIONS 1942 1st Half	COMPLETIONS Percent Change	FOOTAGE DRILLED 1941 1st Half	FOOTAGE DRILLED 1942 1st Half	FOOTAGE DRILLED Percent Change	AVERAGE DEPTH 1941 Entire Year	AVERAGE DEPTH 1941 1st Half	AVERAGE DEPTH 1942 1st Half
Alabama	1	3	+ 200.0	305	4,697	+1440.0	3474	305	1565
Arkansas	80	66	— 17.5	326,990	382,317	+ 16.9	4413	4087	5793
California	533	368	— 30.9	3,069,795	1,925,493	— 37.2	5494	5759	5232
Colorado	8	5	— 37.5	22,219	29,718	+ 33.7	3276	2777	5944
Florida	.....	.....	.....	.....	.....	.....	1280	.....	.....
Georgia	1	2	+ 100.0	1,501	6,519	+ 334.3	1501	1501	3259
Illinois	1,658	932	— 43.8	3,727,190	2,347,520	— 37.0	2337	2248	2518
Indiana	250	194	— 22.4	490,843	319,876	— 34.8	1777	1963	1648
Iowa	2	.....	.....	6,274	.....	.....	2334	3137	.....
Kansas	1,043	786	— 24.6	3,130,084	2,367,504	— 24.3	2989	3001	3012
Kentucky	146	72	— 50.7	159,039	97,741	— 38.5	1051	1089	1357
Louisiana	670	515	— 23.1	4,010,284	3,391,135	— 15.4	5639	5985	6584
North Louisiana	243	231	— 4.9	714,009	906,712	+ 26.9	2963	2938	3925
South Louisiana	427	284	— 33.4	3,296,275	2,484,423	— 24.6	7835	7719	8748
Michigan	387	344	— 11.1	794,248	879,212	+ 10.7	2257	2052	2555
Mississippi	86	65	— 24.4	418,268	337,137	— 19.3	4944	4864	5186
Missouri	32	16	— 50.0	25,617	7,522	— 70.6	709	801	470
Montana	98	83	— 15.3	214,026	195,964	— 8.4	2136	2184	2361
Nebraska	41	25	— 39.0	91,815	56,240	— 38.7	2080	2239	2249
New Mexico	168	204	+ 21.4	478,390	564,235	+ 17.9	2824	2847	2765
New York	391	572	+ 46.2	539,624	725,719	+ 34.4	1323	1380	1268
Ohio	787	539	— 31.5	1,402,950	1,241,775	— 11.4	1857	1782	2303
Oklahoma	1,015	757	— 25.4	2,605,761	2,215,662	— 14.9	2686	2567	2926
Pennsylvania	1,913	1,968	+ 2.9	3,288,216	3,261,378	— 0.8	1697	1718	1657
Tennessee	9	7	— 22.2	13,318	10,317	— 22.5	1319	1479	1473
Texas	4,745	3,180	— 32.9	17,354,883	13,051,959	— 24.8	3627	3657	4104
East Texas Border Co.'s.	13	7	— 46.1	58,568	34,687	— 40.7	4016	4505	4955
East Texas Field	317	15	— 95.2	1,144,881	50,771	— 95.5	3617	3611	3384
Rest of Eastern Texas	254	200	— 21.2	1,131,882	980,965	— 13.3	4589	4456	4904
North Texas	1,143	525	— 54.1	2,537,774	1,299,150	— 48.8	2169	2220	2474
West Central Texas	282	201	— 28.7	517,491	432,218	— 16.4	1831	1835	2150
West Texas	985	912	— 7.4	4,078,735	3,819,890	— 6.3	4101	4140	4188
Texas Panhandle	276	232	— 15.9	832,111	691,347	— 16.9	3014	3014	2979
Gulf Coast, Upper	371	272	— 26.6	2,437,068	1,782,455	— 26.8	6271	6568	6553
Gulf Coast, Lower	587	491	— 16.3	3,223,007	2,922,001	— 9.3	5587	5490	5951
Southwest Texas	398	255	— 35.9	1,174,185	854,955	— 27.1	3048	2950	3352
South Central Texas	119	70	— 41.1	219,181	183,520	— 16.2	1752	1841	2621
Utah	.....	.....	.....	.....	.....	.....	3652	.....	.....
Virginia	.....	1	.....	.....	1,113	.....	.....	.....	1113
West Virginia	324	349	+ 7.7	827,554	1,032,496	+ 24.7	2594	2554	2958
Wyoming	56	37	— 33.9	156,378	133,634	— 14.5	2818	2792	3611
Total United States	14,444	11,090	— 23.2	43,155,572	34,586,883	— 19.9	2963	2987	3118

Wildcatting Decline Smaller Than Total Completion Slump

ALTHOUGH total United States completions during the first six months of 1942 were down 23.2 percent from the 1941 level, wildcat drilling during the same period declined only 9.2 percent. Thus while the industry has failed to achieve the enlarged exploratory campaign desired by OPC, 12.8 percent of the 1942 completions have been wildcats against but 10.8 percent during the first six months of 1941.

The first half of 1942 saw completion of 1422 wildcat operations, while 1566 were completed in 1941.

Detailed breakdown of wildcat completion results covering only the first six months of 1941 are not available, but apparently the industry maintained its 1941 rate of successes. Of the total 1942 wildcat completions during the first six months, 193 were completed as oil wells and 40 as gas wells. In other words, 15.5 percent of the wildcats finished were successful. This is practically the same degree of success shown by Lahee[1] in his annual study, his figures for the complete year 1941 revealing 15.41 percent of the wildcats found oil or gas production.

[1] Frederic H. Lahee, "Wildcatting In 1941 With Comments on Discovery Rate," published June, 1942, bulletin of American Association of Petroleum Geologists, and The Oil Weekly of April 20, 1942.

Successful wildcats resulted in the opening of 172 new oil and gas fields, in contrast with only 143 new fields discovered during the first six months of 1941. Thus more new fields were opened per wildcat drilled than during 1941 by a substantial margin. The remaining successful wildcats were major extensions to previously discovered fields.

It now is beyond any measure of hope that the OPC goal for drilling of 4000 wildcats during the year will be reached. It appears that the total will be in the neighborhood of 2800 and at the most 3000, or at best only 75 percent of OPC's recommendation. An even greater margin of difference may occur in number of successful oil completions, for OPC estimated 624 of the 4000 desired wildcats should produce oil, but unless there is a spurt in the remaining six months not more than 400, or 64 percent of the OPC figures, will do so.

Some states showed increased prospecting activity. Notable among these has been Kansas, where 56.4 percent more wildcats were completed in the first half of 1942 than in the corresponding period of 1941. And of the 183 wildcats finished, 17.5 percent found either oil or gas. Oklahoma also recorded an increase, gaining 11.7 percent over the 1941 rate. This state also ranked high in degree of success, 23.5 percent of its wildcat completions being oil or gas producers. The active territory showing the largest gain in wildcat activity, however, was West Texas. This region, despite shipping troubles and heavy production proration, recorded completion of 78 wildcats against 38 in 1941, a gain of 105.3 percent.

From an efficiency standpoint, South Louisiana continued to rank at the top of the list, 36.6 percent of its wildcats being successful. North Louisiana, where prospecting was up 31 percent in volume, had disappointing results when only 5.3 percent of its wildcat operations found oil or gas.

Despite a decline of 11.4 percent from its 1941 record, Texas continued as the most active prospecting region. A total of 568 wildcats were completed in this state, or 39.9 percent of the nation's gross. However, results were comparatively poor, only 13.6 percent of its wildcats turning out to be successful ventures.

Second most active wildcatting spot was Illinois. Completions of 245 wildcats in the state resulted in a decrease of 16.9 percent from its 1941 rate, and only 13.5 percent successful.

Kentucky operators drilled 14 wildcats during the 6-month period as against 5 tests in the same period of 1941 for a gain of 180 percent. Of the 14 drilled, two produced oil while 12 were abandoned. Alabama and Georgia, center of considerable geophysical activity within the past 12 months, likewise showed a gain in number of tests, although none produced either oil or gas.

Arkansas, which is receiving more attention due to recent limestone discoveries, showed a decline in number of wildcats, but of the 7 tests drilled 2 produced oil. In the same period of 1941 operators in that state drilled 16 wildcats. California operators drilled 15 wildcats against 33 last year for a net loss of 54.5 percent. Of those drilled one resulted in a new oil field.

Other states showing drops in wildcatting include Indiana, Iowa, Michigan, Nebraska, Missouri, New Mexico and the Rocky Mountain area.

Wildcat Completion Rate in United States

AREA	Wildcat Completions January to June 1941	1942	Percent Change	Details on 1942 Operations Oil	Gas	Dry	Percent Producers
Alabama	1	3	+ 200.0	....	....	3	....
Arkansas	16	7	— 56.3	2	....	5	28.5
California	33	15	— 54.5	1	....	14	6.7
Georgia	....	2	+ 200.0	....	....	2	....
Illinois	295	245	— 16.9	31	2	212	13.5
Indiana	70	32	— 54.3	5	....	27	15.6
Iowa	2	....	— 200.0	....	....	....	....
Kansas	117	183	+ 56.4	30	2	151	17.5
Kentucky	5	14	+ 180.0	2	....	12	14.3
Louisiana	75	79	+ 5.3	15	2	62	21.5
North Louisiana	29	38	+ 31.0	2	....	36	5.3
South Louisiana	46	41	— 10.9	13	2	26	36.6
Michigan	106	86	— 18.9	7	1	78	9.3
Mississippi	15	17	+ 13.3	1	....	16	5.9
Missouri	9	....	— 900.0	....	....	....	....
Nebraska	31	11	— 64.5	1	....	10	9.1
New Mexico	17	13	— 23.5	4	....	9	30.8
New York	....	1	+ 100.0	1	....	....	100.0
Oklahoma	128	143	+ 11.7	26	8	109	23.8
Rocky Mountains	5	3	— 40.0	1	1	1	66.7
Texas (Total)	641	568	— 11.4	66	11	491	13.6
East Texas	54	51	— 5.6	5	....	46	9.8
North Texas	150	126	— 16.0	15	....	111	11.9
South Texas	269	203	— 24.5	20	8	175	13.7
Texas Gulf Coast	46	38	— 17.4	4	1	33	13.2
West Texas	38	78	+ 105.3	13	....	65	16.7
West Central Texas	84	72	— 14.3	9	2	61	15.3
Total	1,566	1,422	— 9.2	193	27	1,202	15.5

JUNK

—you've got what it takes

THAT old junk -- useless to you -- may provide the extra implements of war to insure Victory -- your old iron and steel, copper, brass, rubber, even burlap, paper and grease.

Take steel, for example. Every hundred pounds of scrap you turn in will help produce one more powerful demolition bomb to speed the destruction of those plants that enable the Nazis and Japs to prolong the war.

To make the steel for a large tank, 10 to 15 tons of scrap are needed. And one badly needed "sub-chaser" takes many carloads of scrap.

The steel industry is using all its resources to produce more steel, but it needs your help and needs it now, -- that's why the junk you can turn in is so vital to America's war effort. 25-36E

THE YOUNGSTOWN SHEET & TUBE COMPANY

Youngstown, Ohio

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"WASTE NOT — WANT NOT" YOUNGSTOWN

Extraordinary Half Year

[Continued from page 16]

make sufficient fuel at reduced runs to stills.

Thus far, despite increased refinery yields of these products, the industry has been unable to build up inventories of fuels for the forthcoming winter. Refiners are confronted with the problem of producing more fuel oil, which cannot be remedied by enlarging crude runs to stills without making too much gasoline unless they are able to achieve further adjustments in yields.

In view of this situation it appears that refinery runs cannot be reduced further without impairing the war effort. Since this is unthinkable, the outlook for crude runs to stills is for an increase if any material change is made, with possible additional adjustments in yields.

Production Follows War Trend

Crude production, entering the year with a 15.9-percent margin above a year ago and only 1000 barrels per day less than the preceding month's all-time high, followed the course of refining operations by dipping to a low in April and then showing some improvement in May and June although remaining under the previous year's rate.

In January, daily average production of crude oil was 4,137,483 barrels, which slumped to 3,501,215 barrels daily in April. The loss was due principally to curtailed production in Texas and neighboring states as a result of transportation troubles to the East Coast. Of assistance in recording this sharp decline was the decreased natural output of Oklahoma and Illinois, states which were experiencing enlarged demands because of disruption of transportation between Texas and the East Coast. Oklahoma production fell below 400,000 barrels in February for the first time since April, 1933, and the end of June was recovering but 375,000 barrels daily. Illinois suffered an even more severe drop, its output of 390,000 barrels daily the first week in January declining to 275,000 barrels per day the end of June. The average daily output of wells in June was 3,649,000 barrels, or 4.8 percent under that month in 1941.

As a result of the material increase shown by January and February over 1941 rates, production for the full half year was 683,530,750 barrels in contrast with 667,338,000 barrels, or a gain of 2.4 percent over the first half of 1941.

At this rate of production, stocks of crude oil rose 3.6 percent during the half year. They totaled 253,364,000 barrels on June 27, in contrast with 244,440,000 barrels on January 3, but were still 2.3 percent under a year ago.

Production also felt the influence of changed demands. As requirements for fuel oil and aviation gasoline increased while motor gasoline was declining, refiners naturally sought crudes with qualities especially suited for making these products. Consequently, many fields were faced with shrinking call for production while others had enlarged demands. This situation is expected to continue, since consumption requirements are due to continue along this course.

The production outlook for the remainder of the year is somewhat more encouraging than in the past few months, due to prospects for increased shipments to the East and the possibility that refinery operations may be increased to take care of the fuel oil situation. However, production will continue to fall farther and farther behind the 1941 rate because of the exceptionally sharp gains registered last year, and which cannot hope to be duplicated.

Drilling in Sharp Decline

Confronted with government regulations requiring 40-acre spacing, equipment procurement difficulties as available steel supplies were limited, and comparatively poor production conditions, the drilling of wells suffered an even more sharp curtailment than did crude production and refinery crude runs. But like these other operations showed some improvement in May and June. As explained in detail in an article on page 17 of this issue, drilling was averaging over 600 completions weekly during the last quarter of 1941, but with promulgation of 40-acre spacing rules dropped to 551 per week during January. By March weekly average completions had declined below the level of the previous year, and finally reached a low of 341 per week in April.

While overall completions for the first six months were 23 percent under the corresponding period of 1941 and were due to lag farther behind that year's rate despite slight prospects for improvement in the last two quarters of the current year, wildcat drilling was only down 9.2 percent. Numerically, wildcat operations were having a banner year, resulting in the discovery of 173 new fields during the first six months. However, on development to date none of the fields seemed to be outstanding and it was doubtful if reserves gained materially.

Earnings Are Curtailed

With production and sales volumes down, the industry faced real financial hardships in being confronted with sharply increased transportation costs, necessity for plant and pipe-line expansion, larger taxes, and government price ceilings. Consequently, earnings nosedived materially. Only partial compensation came from OPA approval of higher East Coast refined product prices, after the industry had gone into the hole heavily for several months through shipping oil there in large volumes at below-cost levels.

Prospects for slightly larger per-well allowables, especially during the next six months and in the southwestern states as transportation facilities expand, and reduced costs resulting from less drilling, somewhat improve the outlook for the immediate future.

The industry probably could stand all these burdens in good condition, if consumption of motor gasoline could be improved along with war products. So once more Ole Man Rubber becomes the controlling factor of the future.

While the rubber outlook is dark today, the fact that it is realized that curtailed auto travel is going to throw a good part of the nation's economic system and war preparation program seriously out of joint is causing both great laboratories and woodshed inventors to concentrate all their skill on the problem. American resourcefulness is apt to win this great struggle, and the United States may yet remain a nation on wheels. Then, the outlook for oil will become cheerfully bright despite all the disturbances of war.

United States Crude Production Trend

MONTH	1942 Daily Average	1942 Monthly Total	1941 Daily Average	1941 Monthly Total	Percent Change
January	4,137,483	128,262,000	3,569,258	110,647,000	+ 15.9
February	4,070,035	113,961,000	3,599,678	100,791,000	+ 13.1
March	3,709,138	114,983,300	3,639,258	112,817,000	+ 1.9
April	3,501,215	105,036,450	3,702,666	111,080,000	— 5.4
May	3,606,559	111,803,350	3,773,419	116,976,000	— 4.4
June	3,649,488	109,484,650	3,834,233	115,027,000	— 4.8
Total or Average	3,776,412	683,530,750	3,686,950	667,338,000	+ 2.4

Based upon A.P.I. weekly figures.

War Causing Rebuilding of Nation's Pipe Line System

ENEMY submarine attacks upon Gulf Coast to Atlantic Seaboard tankers and the necessity of diverting large numbers of these boats to military duties, has created an acute petroleum transportation problem which is resulting in the almost complete rebuilding of the oil shipping system of the United States. Already great changes have been made by the industry, which is working together on the problem as never before on a single task, but the second half of 1942 is to see more of this work completed or in the construction stage than did the first part of the year, which was devoted for the most part in the working out of plans for such moves.

Rebuilding of the petroleum transportation system, so production from the Southwest can be moved to the consuming East Coast region, is being accomplished under most difficult conditions, because of the shortage of steel and the large quantities required to build such large overland carriers. However, in addition to new systems, old carriers are being taken up and relaid in strategic new locations, others are being reversed in flow and other equally important and unusual conversions are being made.

East-Bound Lines Full

Meanwhile, the industry has been using all existing lines running north and east from the Mid-Continent and Coastal regions to full capacity, through loops, and additional pumping units has boosted the capacity of these lines, and has adopted railroad tank cars as a means of getting enough petroleum to the East Coast to meet absolutely minimum requirements. The volume moved by railroad, which normally is practically nothing, has risen in recent months to in excess of 700,000 barrels per day. Enlarged barge and pipe-line movements have helped also, but still there is not enough petroleum reaching the East Coast. Consequently, the next six months are to see improved facilities constructed, especially in the way of pipe lines.

Foremost in importance and size of the 1942 pipe-line projects is the so-called "big-inch" line, a $65,000,000 government-financed, 24-inch, 550-mile carrier to be built from Longview, Texas, to Salem, Illinois. After a year of trying to obtain steel priority necessary for its construction, and being rejected three times, the industry received a go ahead signal from WPB in June. Immediately steps were taken to assure speedy construction of the system, which will move 300,000 barrels daily to its Illinois terminal. At that point part of the oil, according to present plans, will be used in Illinois and the remainder will be carried East by rail, barge and pipe lines. It is due to be completed December 1, with construction to start in early August. The original plan for this line called for such a system from Longview to New York and Philadelphia, and the portion approved may later be extended. New equipment, about 425,000 tons, will be used in its construction. It is estimated that East Coast supplies will be increased by 150,000 to 200,000 barrels daily by construction of the "big-inch" line, although it will not go beyond Illinois according to present plans.

OPC Relocation Program

More than 30 separate undertakings are involved in an industry financed $30,000,000 seven-project relocation and change of flow direct program worked out by OPC committees, and WPB has given clearance for the small amount of new material that will be required on most of the proposals. The program is expected to be completed in six months, a major part within three months. The overall program is to increase the flow of crude oil and products to the Atlantic Seaboard by more than 200,000 barrels a day, 87,000 barrels of it by pipe lines exclusively and the remainder by combination pipe line to Mississippi and Ohio River and Illinois points, thence eastward by tank car and river barge. The shorter river and railroad hauling distance will step up delivery.

The OPC relocation pipe line program includes the following:

With announcement of WPB approval of the plan, Deputy Coordinator Davies made available a progress report of the various projects, as follows:

OPC Project 1: Increasing crude movement from Texas to Illinois and then East by 41,000 barrels daily, of which 25,000 barrels will be moved out of Illinois by pipe lines and 16,000 barrels by lake tankers and rail. Completion scheduled November 15.

All project items have received ratings and work is under way at various points. The project is in three parts and includes the following separate undertakings by the companies listed:

Undertakings

a. The Texas Pipe Line Company—Conversion and reversal of eight-inch crude oil line from Port Arthur to Dallas, Texas; installation of pump station at Waxahachie, Texas; laying 110 miles of 10¾- and 8⅝-inch lines between Dallas and Stuart, Oklahoma. Stanolind Pipe Line Company—Laying 54 miles of 12-inch line between Graford, Texas, and Healdton, Oklahoma; installation of pump station at Devol, Oklahoma.

b. Shell Pipe Line Company — Construction of 10-inch crossing under South Canadian River between McClain and Cleveland Counties, Oklahoma. Stanolind Pipe Line Company — Replacement of river crossing (four lines) under North Canadian River in Pottawatomie County, Oklahoma; construction of river crossing under Missouri River. Ajax Pipe Line Company—Laying 10 miles of 10-inch loop lines in Missouri. Texas-Empire Pipe Line Company—Installation of pumps and replacement of 11 miles of pipe on Valley Center, Kansas, line; installation of pump stations at Hiattville and Eureka, Kansas; installation of pump station at Centralia, Missouri; laying 32 miles of 12-inch line in Illinois. Stanolind Pipe Line Company—Installation of superchargers to increase pumping capacity between Kansas and Illinois.

c. Buckeye Pipe Line Company—Installation of pumps at Ellsworth, Mt.

Cory and Warren, Ohio. Illinois Pipe Line Company—Laying 152 miles of 8-inch line across Ohio. Tuscarora Oil Company—Conversion and reversal of gasoline pipe line across Pennsylvania between Negley, Ohio, and Bayway, New Jersey. (The reversal has been accomplished already and the line will be converted to crude service as rapidly as possible.) Southern Pipe Line Company — Installation of pump stations at York, Pennsylvania, and Hancock, Maryland.

OPC Project 2: Increasing products movement through Plantation Pipe Line between Baton Rouge and Greensboro, North Carolina, by 30,000 barrels daily. Completion expected November 15.

Project rating obtained for installation of 14 intermediate pumping stations between Baton Rouge and Greensboro. Application expected to be submitted in a few days covering construction of 212 miles of 10¾-inch and 80 miles of 8-inch second-hand pipe from Beaumont, Texas, to Baton Rouge to supply approximate 60,000 barrels of products daily to Plantation line.

OPC Project 3: Increasing pipe-line delivery of products to East by 15,000 barrels daily.

Shell Oil Company has obtained project rating for pump station at Muncie, Indiana. Filing of project application for products pipe line from Fostoria to Akron, Ohio, depends on future developments in connection with studies of alternative methods of moving products eastward. Project rating obtained for reversal of Susquehanna pipe line between Cleveland, Ohio, and Twin Oaks, Pennsylvania.

OPC Project 4: Increasing products pipe line capacity in East by 32,000 barrels daily.

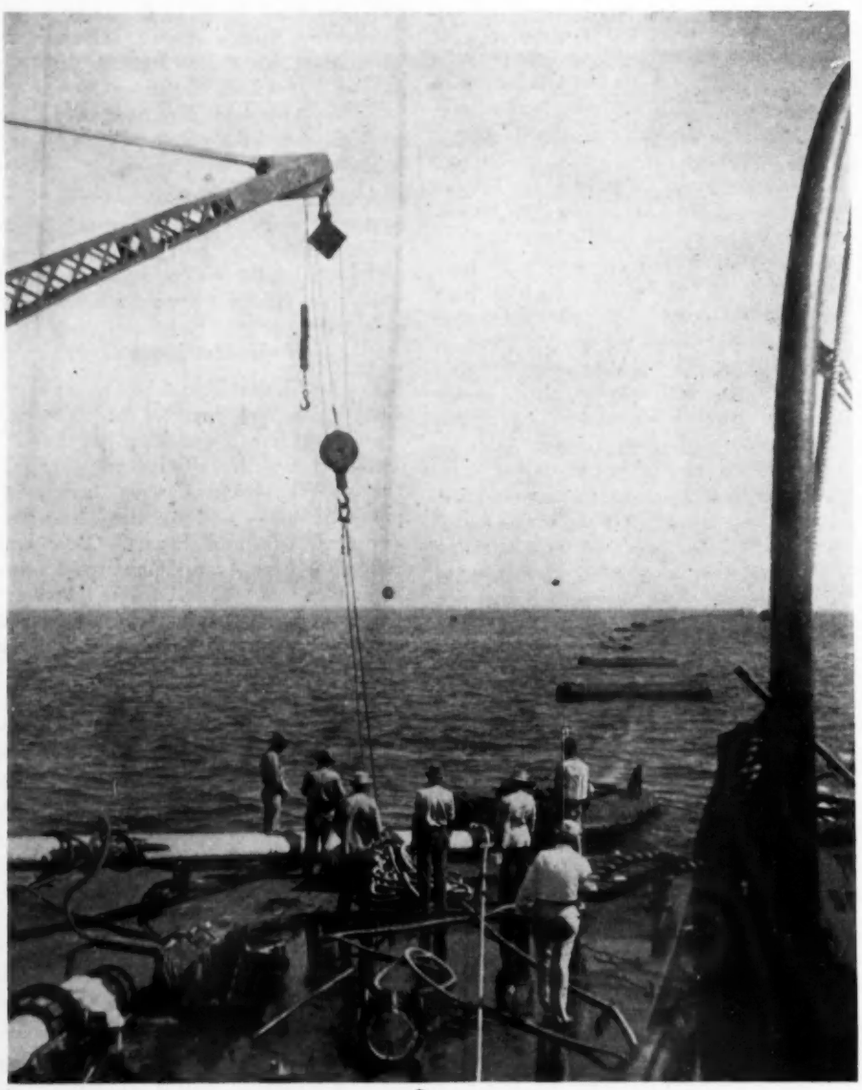
Sinclair Refining Company has obtained project rating for completion of products line between Marcus Hook, Pennsylvania, and Steubenville, Ohio. Line as originally planned by company was to have moved products westward, but will move 12,000 barrels of products a day received by barges and rail to East, instead. Keystone Pipe Line Company has completed reversal and conversion of present products line between Pittsburgh and Philadelphia and is delivering 20,000 barrels of crude daily now.

OPC Project 5: Increasing pipe line delivery of products to Mississippi River at Helana, Arkansas, by 55,000 barrels daily, for shipment up the Mississippi and Ohio Rivers by barge to Pittsburgh. To be finished November 1.

OPC has approved the project application of Gulf Refining Company for reversal and conversion of present crude oil line to transport products from Port Arthur, Texas, to El Dorado, Arkansas. Applications expected soon from: The Texas Pipe Line Company for construction of 15-mile extension of its system from Bossier City, to Benton, Louisiana, to connect with Magnolia pipe line system at Benton Junction, Louisiana, using 8-inch pipe reclaimed from existing lines, and for reversal of Magnolia crude oil line between Benton Junction and El Dorado; and Project Five Pipe Line Company for construction of 158-mile products line from El Dorado to Helena, using 10¾-inch pipe reclaimed from existing lines. Project rating obtained for Humble Pipe Line Company covering installation of complete pump station at Alanreed and Rule, Texas, to handle crude now moving through Gulf-Magnolia line from Panhandle to Ranger, Texas, which is now being taken up.

OPC has approved plans for a sixth project: Construction of an 8-inch prod-

Fourteen-Inch Gas Line Goes to Sea



Notable among pipe line projects completed this year is United Gas Pipe Line Company's 200-mile 16-inch gas line from Larette field in South Louisiana to Mobile, Alabama. Construction included the world's longest underwater line, the longest single "shove", many miles through swamps and numerous river crossings, including the Mississippi where it is 2800 feet wide and 90 to 120 feet deep, with stiff current. The picture shows the line being laid across Lake Pantchartrain—25.59 miles of open water. The lake crossing was a saving of much pipe and was selected in preference to 37 miles of skirting the shore, most of which is swamp. Pipe in the lake was reduced to 14-inch and welded in 2500-foot sections put together on land and towed to place. More than a month was required for the crossing, which was delayed by storms which required moving floating equipment to shore. The pipe for the long underwater route has half-inch wall thickness and an inch of protective coating. The line provides additional gas to important war plants in the Mobile-Pensacola area.

MORE "STAYING POWER" ON PUMPING JOBS

Triple-shift operation is an old story to this Tri-Clad motor driving a coolant pump. Tri-Clad motors are now available up to 100 hp in standard, open construction, and in a wide range of other types and ratings.

Protected. Dirt and dripping liquids are ever-present enemies of motor operation in locations like this. But the smoothly contoured, cast iron frame of this Tri-Clad motor guards it against damage.

Long Lasting. This Tri-Clad motor is an excellent running mate for the chlorinating pump it drives. Its extra-protection features—cast iron frame, windings of Formex wire, improved bearings—are assurance of long life on important jobs.

The extra protection of TRI CLAD MOTORS helps keep pumps delivering

NOW—before you buy motors—is the time to solve your pump-motor problems. Wherever continuous pumping is essential to your production—wherever pumps must operate under adverse conditions—your motors must be secure against 1) physical damage, 2) electrical breakdown, 3) operating wear and tear.

Here's where the *extra*-protection features of Tri-Clad motors will help you get the triple-shift operation you need. Their cast-iron frames and end shields exclude falling objects and dripping liquids; their windings, of Formex wire, are resistant to oil, moisture, and heat shock; their improved bearings, completely sealed in cast iron, are protected against the entry of dust and dirt. All these features add up to *extra staying power* on jobs where 24-hour production is essential.

How to Get Motors Quicker

USE STANDARD MOTORS. Wherever possible, select standard, open, sleeve-bearing motors. Building fewer "specials" means faster and greater production of motors for war work.

PLACE ORDERS EARLY. Order the motors when you order, or plan for, the equipment they are to drive.

SEND PROPER PRIORITY. Be sure correct priority papers accompany your order and that the priority rating reflects the urgency of the motor's use in the war.

CHECK G.E. for warehouse stocks. A supply of many standard motors are kept on hand to meet urgent war needs. Perhaps the motor you want, or can use with a few simple changes, is available for immediate shipment.

General Electric, Schenectady, N. Y.

General Electric and its employees are proud of the Navy award of Excellence made to its Erie Works for the manufacture of naval ordnance.

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ucts line across northern Florida, using second-hand pipe excavated in Texas, which will provide additional facilities for the southeast to the extent of 35,000 barrels; and a seventh project is still under study, for increasing movement of products from Longview, Texas, to near Paducah, Kentucky, and then East by 60,000 or more barrels daily.

Relatively little new equipment will be required for completion of these projects, since much of the pipe and pumping equipment will be salvaged from lines being taken up for the purpose. However, some of the additional pump stations will require new material, such as the 14 stations to be added to Plantation Pipe Line Company's Baton Rouge-Greensboro system, and in other places some valves and other equipment will be needed. Approximately 70 miles of the 110 miles to be laid by The Texas Pipe Line Company between Dallas and Stuart, Oklahoma, will be gained through salvaging of the company's Panhandle-Electra line between Childress and Electra. Texas also is salvaging 105 miles of an old line from Oil City, Louisiana, to San Augustine, Texas, and will use the material on both the Dallas-Stuart project and in building the 15-mile tie-in on the Port Arthur-El Dorado conduit mentioned in Project 5. Gulf-Magnolia is dismantling its 246-mile Texas Panhandle-Ranger system, and this will provide enough pipe to build the El Dorado-to-Helena 10-inch line that is a part of Project 5. Magnolia will use the remainder of the salvaged pipe to loop and expand its Southwest Texas system.

Other Work

Before Congress is the Mansfield Inland Waterway Bill, which in addition to providing for a line across Florida to connect the Gulf Coast and Atlantic Coast intercoastal canals, also provides for construction of a pipe line by Trans-American Pipe Line Corporation from the Tinsley, Mississippi, field to either Charleston or Savannah on the Atlantic Seaboard.

Magnolia Pipe Line Company is ready to start enlargement of its Southwest Texas system. The project includes 45 miles of 10-inch pipe, salvaged from the Panhandle-Ranger system, to be used on the present 73-mile 8-inch system from Vanderbilt to Sealy. The company's Luling-Sealy-Beaumont line, of which the above is a feeder, will receive 62 miles of 8-inch to make it a double unit. This will enable the company to separate its Southwest Texas crudes for war requirements as well as increase its capacity.

The Texas Company built a 32-mile 6-inch oil line from Johnsonville in Wayne County, Illinois, to the Rural Hill pool of Hamilton County.

Atlas Pipe Line Corporation laid the only trunk line of any length in North Louisiana-Arkansas, a 40-mile 6-inch oil unit from the Magnolia field, Columbia County, Arkansas, to the Cotton Valley field, Webster Parish.

Largest line laid in the Gulf Coast was Atlantic Pipe Line Company's 6-inch 72-mile system from Atreco (Port Arthur), Texas, to Neale, Louisiana, which was reversed immediately to transport oil from Atreco to Neale, thence east by rail.

West Texas Gasoline Line

The longest pipe line project within Texas either under way, or projected, involves Phillips Petroleum Company's trunk line that will deliver mixed grades of products produced by natural gasoline plants in West Texas and Lea County, New Mexico, to its refinery at Borger, Texas. Construction began in June. This line will consist of 240 miles of 8-inch, southwest from Borger to three large plants in Ector and Crane counties, with a 55-mile 6-inch lateral to plants in Lea County. The company has contracted for purchase of the entire output of other plants in the Permian Basin, thus assuring a capacity load for its carrier.

Pipe line construction for the movement of crude in West Texas was confined to small extensions and loops during the first half of the year. Stanolind Pipe Line Company extended its Winkler County system to Ward County, using 19 miles of 6-inch pipe to reach a group of pools that yield crude with high lube and high-octane gasoline content. Phillips built a 5-mile 4-inch line in providing an outlet for its Embar pool. Humble Pipe Line Company inserted 8.8 miles of loops into its Wasson-Hobbs system, and bolstered its capacity in Ector County through installation of an 8-mile 8-inch loop.

Shell Pipe Line Corporation has had pipe on the ground several months for an 85-mile combination 6- and 8-inch from North Texas fields to connect with its Mid-Continent grade crude outlet in Southern Oklahoma, but Washington has not granted approval of the project.

Continental Pipe Line Company built 25 miles of combination 3- and 4-inch in connecting a group of small pools in Clay County to its Wichita Falls-Nocona carrier near Thornberry.

Natural Gas

War has created an enlarged demand for natural gas, and like oil and refined products, there would be a boom in pipe-line construction were it not for the steel shortage.

Union Gas System, Inc., has submitted plans to OPC and WPB for construction of a new 300-mile gas system eastward from the Hugoton gas field in Western Kansas across that state into western Missouri. It would transfer supplies to all existing main pipe line systems for distribution to industrial and civilian consumers in eastern Kansas and western Missouri.

Hope Natural Gas Company would spend $30,000,000 on a 772-mile 20-inch line from the Monroe, Louisiana, gas field to near Charleston, West Virginia, if materials could be obtained. A total of 160,000 tons of pipe would be required. Heavy increases in demand by war industries in the Appalachian region prompt the desire for construction of the line.

Early February saw United Gas Pipe Line Company complete a 200-mile line from the Lirette and Gibson gas fields in South Louisiana to Mobile, Alabama. Oklahoma Natural Gas finished a 100-mile 12-inch line from Cement and Chickasha area to a point near Stroud, Oklahoma.

Panhandle Eastern Pipe Line Company completed the first leg, 43 miles, of a 275-mile Michigan natural gas transmission line. The first 45 miles, between Milwaukee and Flint, is 12¾-inch, with over 70 percent of the remainder to run from 18-inch to 22-inch. Pipe for the job was delivered several months ago.

The Texas Company constructed a 72-mile 6-inch gas line from Salem to Lawrenceville, Illinois.

California Activity

Conversion to two natural gas lines to low-pressure crude oil lines and construction of a new dry gas line marked the extent of pipe line construction in California in the first half of 1942.

Major development was conversion of the Stan-Pac Natural Gas line from Kettleman Hills to San Francisco Bay area to a low pressure oil line. A small gas line out of the Santa Maria Valley field in Santa Barbara County was also converted to crude.

Principal new construction was a line to carry gas produced from Northern California fields into the San Francisco Bay area to supply gas to consumers formerly serviced by the Stan-Pac line from Kettleman Hills.

In the Los Angeles-Coastal County areas also additional equipment was added to the recently constructed Shell Oil Company crude line linking Ventura Avenue field with Los Angeles Harbor. These installations are understood to have increased the capacity of the line to in excess of 40,000 barrels daily.

Record Number of New Fields Being Discovered

In THE face of less wildcat drilling, more new oil and gas producing fields were discovered during the first six months of 1942 than during the corresponding period of 1941, indicating that the United States may be on the way to establishing another peak in the finding of new producing structures.

A total of 173 new oil and gas fields were found productive during the first half of the current year, whereas only 143 were discovered during the first half of last year. This sizeable gain was made despite a reduction of 9.2 percent in wildcat drilling.

However, none of the new fields discovered appear to be exceptionally prolific or large in area, although subsequent development of the pools may prove the contrary. Thus in the matter of reserves, results may not be in keeping with the numerical success. Exploration for the most part followed established trends, no new oil provinces being indicated.

In addition to the new structures proven productive for the first time, a total of 106 new horizons in previously discovered fields produced their first oil. This represented a decline of 7 from the record established during the first six months of last year.

As usual, Texas continued to lead the parade, having 69 of the new fields and 49 of the new horizons in old fields. This was in contrast with a 1941 six-month period of 53 fields and 56 new horizons.

Oklahoma, showing a sizeable increase, came next with 30 new fields. The state also had 8 new horizons in old fields proven productive. Illinois continued successful despite reduced operations, finding 27 new fields and 13 new horizons against but 18 new fields and 2 horizons in 1941.

Kansas maintained its rate of discoveries with 25 new fields and 7 new producing horizons.

West Texas Busy

Ten oil discoveries and six new producing zones in established areas recorded in West Texas included three outstanding strikes that are already having considerable bearing upon future developments. Ward and Andrews counties accounted for half of the new sources of production.

Prolific Ellenburger discoveries in Ward and Andrews counties along with a Clear Fork strike in the latter county served to emphasize the deep possibilities of the Permian Basin. Still lacking official potential gauge, Shell Oil Company's Sealy-Smith 1, northeastern Ward County, rated 18,000 to 20,000 barrels of high-gravity oil daily, based upon 8-hour gauge, averaging above 1600 pounds back pressure on tubing outlet. It has in excess of 400 ft of extremely porous dolomite pay in Ellenburger, topped 10,082 ft, thus establishing new producing depth and thickness record for Permian Basin. Shell, Stanolind and Gulf hold lease on all acreage in the general area. It is first Ordovician completion for county, although Gulf's Silurian discovery in Wristen pool showed possible production in Ellenburger before losing pipe that prevented decisive test of the deep zone.

Ellenburger production made its initial appearance in Andrews County through the completion of Phillips Petroleum Company's University-Andrews 2, Embar prospect, rated 2274 barrels of 44.5-gravity oil natural through chokes from dolomite at 7806-55 feet. This strike passed up prolific gas flow with oil spray in Clear Fork at 6200-6400 feet, confirming two possible deep zones. Mascho Oil Company opened a new pool on strike between Emma and West Fuhrman pools from regular Permian, although deeper in the section. These two developments combined to result in the starting of about 30 tests on short-term University 160-acre tracts in Blocks 10 and 11, with operators relying upon the deeper pays for their profitable production.

Known lime highs on a general trend between the Ellenburger discoveries of Shell and Phillips are to be explored in the near future, while the deep play will extend north across Andrews and Gaines counties to the Wasson field. Andrews County bolstered its deep production possibilities through the opening of the Fullerton pool from the 7000-foot Clear Fork zone, having 4 flowing wells completed at close of June with the extent of production undetermined.

Ward and Pecos counties each accounted for small flowing discoveries from Delaware lime, while the former also listed 3 oil strikes in regular Permian zones. The second oil producer for Wentz pool, Pecos County, proved dry in the Ellenburger, but made a commercial pumper from 4300-foot Cambrian, the first for the state in this horizon. Reagan County provided a surprise development when 4300-foot Upper Clear Fork production was uncovered on the northeast edge of Big Lake field for a big flow, but an offset failure later discounted the importance of this strike. Small Permian discoveries were recorded in Crockett and Coke counties, involving the first oil production for the latter.

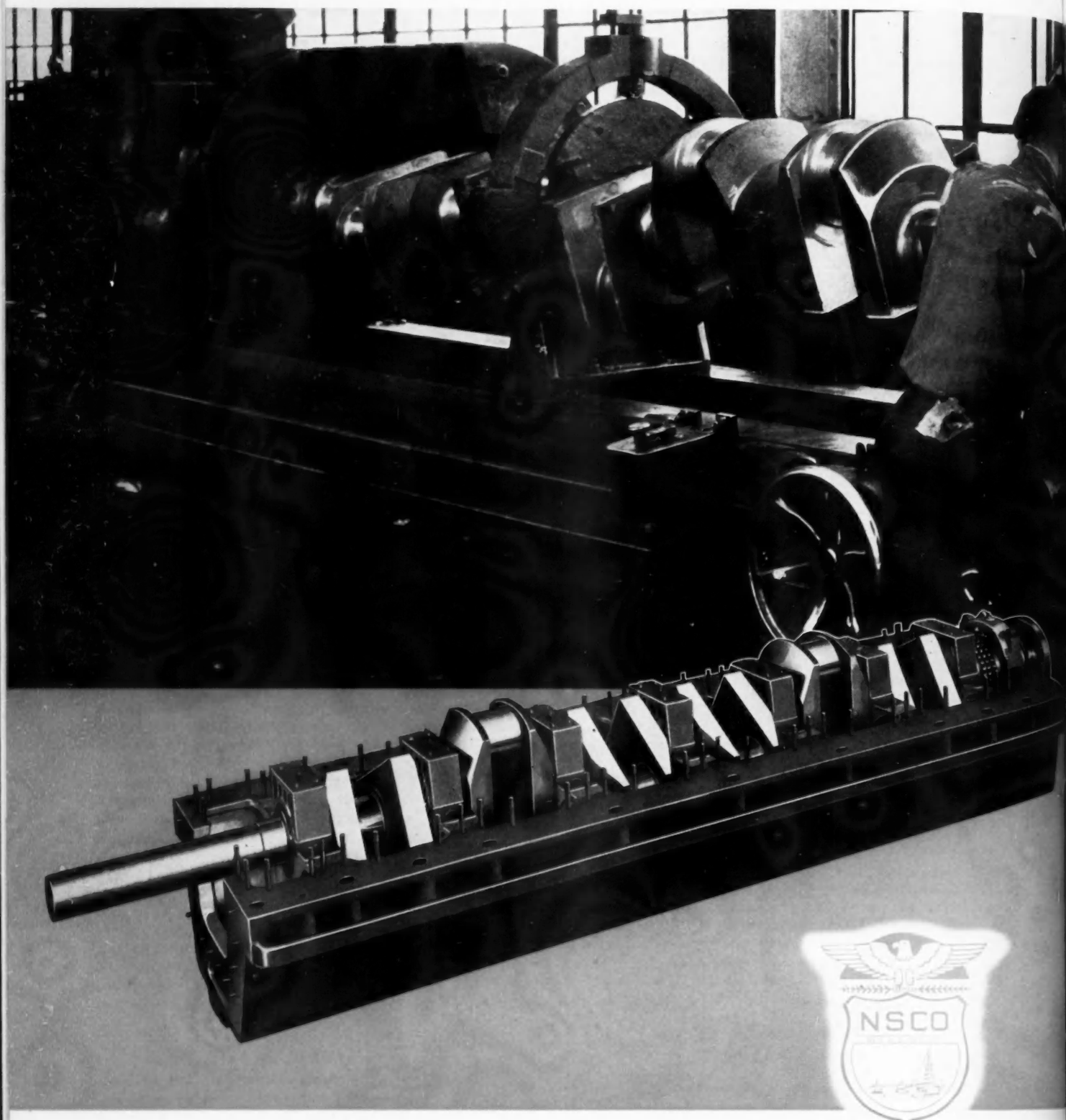
Fifteen for North Texas

Follow-up development has not progressed sufficiently to ascertain if any of the 15 oil discoveries and 5 new oil horizons in established fields in North Texas will attain important rating as crude reserves. New producing depth record for the district arose from completion of Sinclair Prairie's initial test

United States Field Discovery Rates

STATE OR DISTRICT	New Fields Found First 6 Months		New Pay Zones In Old Fields First 6 Months	
	1942	1941	1942	1941
Arkansas	2	0	3	0
California	1	3	0	2
Illinois	27	18	13	2
Indiana	3	2	2	0
Kansas	25	19	7	11
Kentucky	1	0	0	0
Louisiana	6	16	19	25
North Louisiana	2	6	0	1
La. Gulf Coast	4	10	19	24
Michigan	8	7	2	4
Mississippi	0	0	0	0
Nebraska	0	1	1	1
New Mexico	0	1	0	0
Oklahoma	30	22	8	12
Rocky Mountains	1	1	2	0
Texas	69	53	49	56
East Texas	4	1	1	2
North Texas	15	15	5	11
Gulf Coast	11	10	7	10
South Texas	21	15	23	24
West Texas	10	5	6	3
Panhandle	1	0	0	0
West Central	7	7	7	6
Total	173	143	106	113

THE BACKBONE OF



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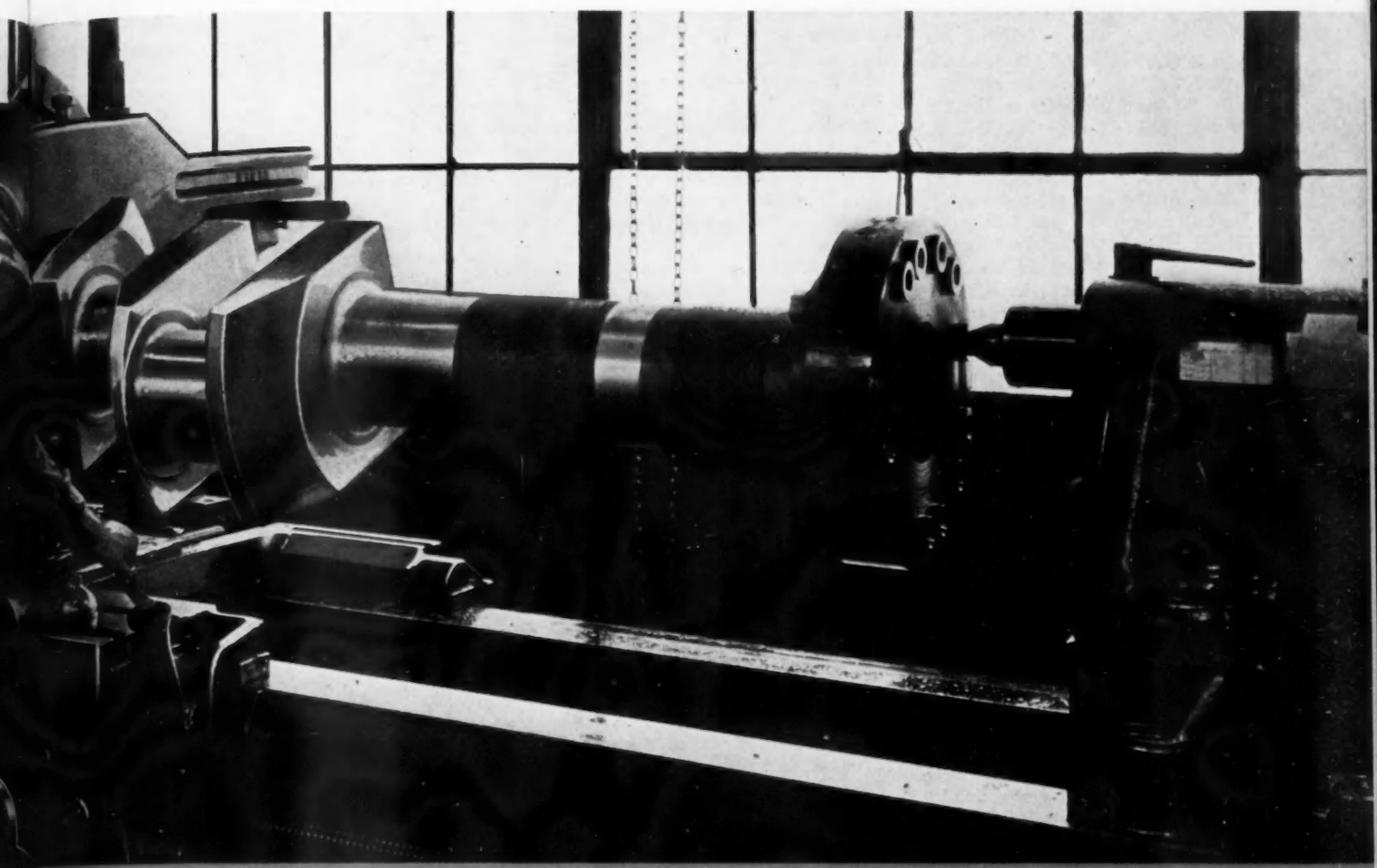

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Our Service and Engineering Departments will be glad to consult with you on any special problems not clearly covered in the regular Operating Manuals furnished with our engines.

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LUBRICATION

1. Use oils that we or reputable refiners recommend.
2. Use lube oil filters as specified by us. Severe conditions may justify installation of special lube oil purifiers.
3. Keep filters clean and replace elements frequently.
4. Maintain proper lube oil temperatures and pressures.

BEARING CLEARANCES

Check main and crankpin bearings for excessive clearances at least once or twice annually, and replace bearing shells or make adjustments as may be necessary without delay. Time and cost to make this inspection is small as compared to that for replacement of a crankshaft.

CRANKSHAFT ALIGNMENT

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Your installation was designed to be free from harmful critical vibrations in the working range. Do not materially change bearings, clutches, shafting, or heavy revolving masses such as pulleys, generator rotors, etc., without consulting us.

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Always avoid overloads, shock loads, and any unwarranted abuse of your engine. Keep your engine securely bolted down to a rigid and level foundation insofar as possible at all times.

on the Forestburg prospect, Montague County, rated at 2369 barrels after acidizing Marble Falls at 7176-7323 feet.

Montague County contributed two additional deep strikes: a prolific Bend producer 1¼ miles northwest of Clingingsmith pool, with an intermediate dry hole, and Continental's flowing discovery on the Mueller-Salona prospect, the only Simpson producer in the county. Benton pool added its first Strawn production after the west outpost plugged back from dry Bend zone.

Two of the quartet of discoveries in Jack County offer possibilities of developing into important producing areas, and both were drilled by Joe A. Worsham et al. The Worsham-Steed discovery in the Smithwick sand has been offset by a gasser to indicate that the pool has a gas cap area, while the Hensley strike in the Marble Falls sand is capable of large natural flow, although completion has been delayed by fishing job. Single discoveries in the Strawn and Ellenburger are of small caliber.

Young County ranked second in number of discoveries, including a Mississippian strike on the Bullock prospect that is 6 miles southwest of nearest deep production. This pay zone records the highest initial flows in the district, but all such pools are small. The county listed a shallow discovery, and a high gas-oil ratio strike from the Bend in the east portion of the county. The latter has attracted a number of nearby tests.

Clay County gained a new Bend pool through the joint efforts of Continental and Roy Lee on the Waston prospect. Explorations have not yet determined the extent of this pool. Two new oil horizons were given the Halsell pool, and one in the New York City pool, all being submarginal pumpers. Grayson County accounted for a non-commercial wildcat pumper, and Archer County's prospecting yielded only a shallow discovery. A deep discovery in Throckmorton County barely qualifies as a commercial flowing well. The discovery of the Potts pool, centering upon Wilbarger-Wichita County line, failed to fulfill expectations after getting off to a good start with an attractive completion in the Mississippian-Ellenburger contact. Follow-up tests proved the pay to be erratic, and subject to rapid water encroachment.

West Central Texas Strikes Small

Prospecting in West Central Texas yielded six oil discoveries and a gas pool, while operations in established fields accounted for new oil levels in six areas and gas production in another pool. This development is void of any outstanding strikes.

Greatest volume of drilling is likely to accrue from opening of the Coker pool, Coleman County, by H. T. Owen and H. H. Adams from the Morris 3000-foot sand, although it is defined to the west. Coleman County accounted for a small oil discovery from the Marble Falls by W. M. Holland et al and a gas strike by Jas. C. Ellis and Fred Estes in the Talpa sector. In the Jim Ned pool, the Morris sand yielded its first oil producer and also a high-pressure gasser through the efforts of Lewis Production Company.

Two shallow oil pools were uncovered in Shackelford County, both destined to be small in area. The Roark-Elliott gas pool attracted renewed activity through the finding of oil production in the Strawn, which has proved itself erratic in performance.

Southwest Texas Active

Southwest Texas recorded 44 new discoveries, 21 new structures and 23 new horizons in previously producing pools, during the first six months of 1942, although drilling declined to the lowest level in many years. Oddly, the rate of successes has been maintained at a near steady level for the past seven years. Their consequence has varied by virtue of several important strikes during that interval.

The past six months' work involved exploration in new trends and resulted in the opening of fields in counties heretofore not in the producing columns. These included Fayette and Wilson, which previously had been looked upon as being of minor consequence.

From an exploratory point of view, the outstanding development was on the Wilcox trend. For several years, a limited amount of work has established several fields and has indicated that this zone may be a future major reserve. This year's work definitely established that fact with eight discoveries in the Carrizo-Wilcox series. A ninth was in process of completion at the mid-year, apparently opening a field of consequence. Two others were testing oil and gas shows.

The up-dip Wilcox trend, extending through Fayette County, parallel with the coast line through LaSalle County and southward into western Starr County, definitely was brought into its own. First production was discovered on the Washburn ranch, northeastern LaSalle County, nearly two years ago. Wildcatting in trend with this field failed to bring any success until this year when the Cistern field, Fayette County, was uncovered at 2808 feet, and the Poth field, Wilson County, was opened at 4084 feet. This trend of several hundred miles, embracing hundreds of thousands of acres, is due for much drilling. Establishment of this line of play is important, as Wilcox previously was considered to be non-productive when found above 5000 feet.

The whole region below the Balcones fault zone now is in line for testing in the Wilcox. Shell Oil Company has Wilcox production below 10,403 feet at Sheridan in Colorado County. Other pools are productive at various intervals above that level to 2808 feet. Likewise, the Carrizo zone, immediately overlying the main Wilcox series, is producing both condensate and oil in several areas in Southwest Texas. Additional discoveries were made in this horizon during the past six months.

Of material consequence is the proving of the Wilcox as a multiple-sand producer. Sheridan, the most completely explored to date, has one well bottomed at 11,497 feet, or approximately 3500 feet into the Wilcox. It has found sands from the top phase of the section to its total depth. This is not a local situation, several other fields having a sand series below the first Wilcox zone. The 5500-foot Washburn sand in LaSalle County, on the up-dip trend, is 1800 feet below the top of the Wilcox.

The Frio trend, extending along the lower Gulf Coast through Jackson County into Hidalgo, gained 25 of the 44 discoveries. Vicksburg yielded 3, Jackson 4, and Yegua 5. Eight strikes were recorded in the Wilcox zone, 1 in the Navarro-Taylor series and 1 in the Taylor-Austin chalk section. These included 21 new fields and 23 new sands.

Discovery of deep Yegua production, 7767 feet, at Alice, Jim Wells County, turns the attention on the Vicksburg trend as a potential deep producer. Although only one gas/condensate producer has been completed in this horizon it establishes that production some 2500 feet below present deepest exploration.

East Texas Above Normal

Four oil discoveries and a new oil horizon in the Chapel Hill field enabled the East Texas Woodbine belt to exceed its normal volume of strikes during the first half of 1942. Development within established fields centered largely upon Hawkins dome, prolific source of asphalt crude from the Woodbine, and in the multi-pay Chapel Hill field, Smith County. Drilling within the East Texas field was almost terminated due to the enforcement of the 40-acre spacing rule.

The most important discovery involves Amerada Petroleum Corporation's 1920-barrel flowing well from Paluxy sand 6262-6350 feet on the Black Oak prospect, Wood County. Five tests were drilling near this discovery at the close of June, and several of these passed up possible oil production in the sub-Clarksville sand at the 4000-4100-foot level. Black Oak is rated as a major

oil strike, but may experience a delay in obtaining pipe line outlet due to the oil being 27.5-gravity, yielding 40 percent lube with more than 2 percent sulphur content.

Two Woodbine strikes along the Mexia-Talco fault plane will cause a revival of explorations in this general region. Hunt County recorded its first production through completion of Hollandsworth Drilling Company et al's Baker 1, Club Lake structure, flowing 266 barrels 39.5-gravity oil initial on ¼-inch choke from perforations at 2761-73 feet. Five nearby tests were under way at the mid-year period, while ample pipe-line outlet is assured. Navarro County portion of the fault trend added a new pool 2 miles southwest of Bazette when John W. Hoosier et al's Black 1, tested 3,000,000 cubic feet of gas with 20 barrels of oil daily from perforations at 3272-79 feet. Both discoveries were preceded by failures that tend to restrict production to narrow widths. Anderson County's contribution was made by Magnolia Petroleum Company's initial test on the Concord geophysical prospect, resulting in a 201-barrel pumper from Woodbine at 4522-42 feet. The oil tests 12-13 gravity, being the lowest grade in the district. Failures to the southwest and northwest discount the area's importance, and future development may be directed at Trinity explorations.

Second oil horizon for the Chapel Hill field materialized when Sun Oil Company's Friedlander 2, east flank test, flowed 102 barrels of 39-gravity oil natural through 9/32-inch choke from Rodessa perforations at 7741-50 feet. This zone yields gas-distillate on top of the structure. This field has a large amount of development pending.

Single discovery in the Texas Panhandle involved a small gasser in southeastern Sherman County by L. R. Hagy-Harrington and Marsh on the Bivins ranch from Permian lime 3105-3200 feet. This is the third gas pool for the county.

Texas Coast Finds 11 Fields

The Texas Gulf Coast maintained its 1941 field discovery rate, finding 11 new fields the first half of 1942 in contrast with 12 during the same period last year.

Of the total number, 6 wildcats were completed as oil field openers. They are: Camp Eleven and Ramers Island in Tyler County; Needville in Fort Bend County; Hampton, Hardin County; Mercy, San Jacinto County; and Jennings Lake in Matagorda County. New gas reserves were opened at Huntington (Rosenberg) in Fort Bend County, and at Collegeport (Citrus Grove) in Matagorda County; while new gas and distillate fields were opened at South Chenango in Brazoria County, North Aldine in Harris County, and at Alief in Harris County.

Two of the fields found production in the Wilcox sand, and based upon preliminary sand data, these fields, Camp Eleven and Mercy, probably will show larger reserves than other discoveries. A majority of the other new reserves yielded production from Frio sands.

During the same six-month period 7 new producing sands were opened in Texas Coastal fields. Three of these were tapped at Stowell in Jefferson County, one in Hull field, Liberty County, one at Lake Creek in Montgomery County, one at Fred in Tyler County, and the other at Livingston in Polk County. Wilcox sand production was opened at Livingston, while a deeper Wilcox level in the Lake Creek field was opened.

The area getting the largest amount of drilling was the Wilcox trend, following considerable geophysical and exploration work in 1941. Superior Oil Corporation has continued its deep drilling campaign in the Lake Creek field, while Shell Oil Company opened Wilcox production at Mercy. Several wildcats have been drilled along the trend, many of them going below 10,000 feet. Rigs have been fairly active in Tyler, San Jacinto, Montgomery, and Newton counties, all in the trend, which probably will continue the most active prospecting region.

Fewer South Louisiana Strikes

Although the field discovery rate in South Louisiana was off considerably, 19 new sands were found in 16 fields. Principal new sand developments were in salt-dome fields.

Four new fields were opened, two producing oil and two yielding gas and distillate, compared with 10 during the first half of 1941. The major oil discovery was at Bay DeChene in Jefferson Parish, while production also was opened at Deville in Rapides Parish. Gas and distillate production was opened at Thornwell in Jefferson Davis Parish and at Hayes in Calcasieu Parish.

Vermilion Parish led with the largest number of new sands, two new horizons being opened at East White Lake, one each at Gueydan and West Gueydan. Two new producing levels were opened in Leeville field in LaFourche Parish. Other new sand discoveries were at Bayou Sale and Charenton in St. Mary Parish; Pine Prairie in Evangeline Parish, Paradis and Bayou des Alemands in St. Charles Parish, two sands at Starks in Calcasieu Parish, Lake Chicot in St. Martin Parish, Port Barre in St. Landry Parish, Lake Pelto in Terrebonne Parish, University in East Baton Rouge Parish, Neale in Beauregard Parish, and Potash in Plaquemines Parish.

The trend in South Louisiana during the first half of the year was toward deeper drilling. Although no new depth records for production were established, most of the newer sand horizons were opened below the old horizons. On the whole, wildcatting was off from the same period last year, due mainly to restrictions in drilling and shipping difficulties which necessitated further production curtailment.

Two North Louisiana Wilcox Fields

Two new Wilcox-sand fields were discovered in North Louisiana, while development of a deeper horizon in the old Haynesville field furnished the most active drilling spot.

Late in June, two Wilcox producing wells established the Lake St. John field in Concordia Parish. In addition, one of the wells proved the existence of gas-distillate production below Wilcox, probably in Paluxy, but plugged back for completion. The California Company's Pan American Life Insurance 1, 2625 feet south and 2079 feet east NWc 15 but in 16-9n-10e, flowed 2,660,000 cubic feet of gas and 175 barrels of 59.5-gravity distillate through 3/16-inch choke at 8935-46 feet. Gas/oil ratio was 15,300 to 1, and tubing pressure stood at 3150 pounds. The gas flow was killed, probably due to federal spacing rules, and the well plugged back and completed at 4567-71 feet in Wilcox sand, where it made 136 barrels of 40-gravity oil per day on 15/64-inch choke. The same company's second Pan American Life test, 1000 feet east of No. 1, flowed 104 barrels on 16/64-inch choke, 20 percent salt water, at 4554-75 feet.

The only other new discovery for North Louisiana was the Catahoula Lake area in LaSalle Parish, opened by Carter Oil Company-Phillips Petroleum Company's Catahoula State A-1, C SW NW 5-6n-4e. It completed April 14 for 157 barrels in 22 hours, 6 percent brackish water, with gas/oil ratio of 200 to 1. Casing was perforated at 4089-92 feet, which is 1340 feet below top of Wilcox but still in the section.

From the standpoint of providing drilling activity, the Haynesville field, Claiborne Parish, was the leader. About 400 wells had been drilled to the Tokio sand at 2700-2800 feet in this old field before the Pettit lime was proved productive on November 25, 1941. Almost all of the 62 wells completed the end of June were drilled during 1942. About 35 more wells can be drilled on the 80-acre staggered location spacing pattern being used. The Pettit has produced about 500,000 barrels of oil, and is prorated to about 12,000 barrels daily. Most wells make 50 to 100 barrels hourly on ¼- to ⅜-inch choke, with gas/oil ratios

of 400 to 1 or less. Depth varies from 5220 to 5450 feet.

The Wilcox play is certain to continue in central Louisiana parishes, including Concordia, Catahoula, Avoyelles, LaSalle, Rapides, Grant, Winn and Natchitoches. Also the successful deep test at Haynesville probably will result in the few untried lower zones in productive fields being tested.

Illinois Discoveries Increase

Despite the 43.7-percent reduction in number of wells completed during the first six months of 1942 as compared with the same period of 1941, and complaint of operators over OPC spacing regulations, wildcat activity in Illinois continued at a brisk pace and returned highly successful results so far as number of discoveries are concerned. However, many of the fields are small both in area and production possibilities. No new fields of the caliber of Salem or Louden apparently were found.

There were 27 new fields opened in the state the past six months, compared with only 18 during the corresponding months of 1941. These brought the number of new fields found in Illinois since its rebirth in 1937 to 142. In addition the first half of the current year saw new producing horizons discovered in 13 pools against only 2, and 11 different fields given extensions. These discoveries, plus recent relaxing of spacing regulations for shallow areas, promise that completions rates the last half of the year probably will be higher than in recent months. The last week in June saw new operations total 63, a record for the year, indicating the activity pendulum is swinging upward.

Probably one of the most important of the new strikes is the shallow Boulder field, Clinton County, where 200- to 300-barrel wells are being completed in Bethel sand at about 1200 feet. Although the field is comparatively small, operators can drill on 10- rather than 40-acre locations because of exceptions granted Illinois operators for wells less than 1500 feet deep.

Another outstanding development was opening of a Trenton lime pool in Madison County on the extreme west side of the basin, which should result in additional prospecting in this region. The two completions are making more than 100 barrels daily from 2400-2500 feet.

Two counties, Clay and Wayne, which played an important part in early development after Illinois' resurrection in 1937 were the site of important strikes. Late in June, Deep Rock Oil Company opened the Jeff pool, Wayne County, 4½ miles west of Fairfield, which now has more than 25 operations. Although producing from the short-lived McClosky limestone, initial gauges have been exceptionally good, ranging from 500 to 800 barrels a day. The pool appears to have been defined on the south and east within a short distance of the discovery well, but development to the north looks promising. Two Clay County fields, Bible Grove and East Flora, were opened that have bolstered production substantially. Both fields produce from two pays, Cypress sand and McClosky lime.

New Illinois fields discovered the first six months of the year follow:

January—Sims North, Wayne County; Samsville, Edwards County; Plainview, Macoupin County.

March—Albion North, Edwards County; Akin, Franklin County; Bible Grove, Clay County; Carmi North, White County; Coil, Wayne County; Concord, White County; Johnsville West, Wayne County; New Bellair, Crawford County; Tamaroa, Perry County.

April—Kell, Jefferson County.

May—Kenner, Clay County; Sesser, Franklin County; Valier, Franklin County; Johnsonville South, Wayne County; Inman West, Gallatin County; St. Jacob, Madison County; Sailor Springs South, Clay County.

June — East Flora, Clay County; Carmi, White County; unnamed pool near Dundas, Richland County; Jeff, Wayne County; Ashley, Washington County; unnamed pool four miles south of Mt. Vernon, Jefferson County.

New sand horizons were discovered in the following fields:

January—Bethel sand, Alma field, Marion County; Levias lime, Sims field, Wayne County.

March—Paint Creek sand, Benton North, Franklin County; Rosiclare sand, Sims North, Wayne County.

April—Cypress sand, Bible Grove, Clay County; Levias lime, Hoodville, Hamilton County.

May—Tar Springs sand, Walpole, Hamilton County; Biehl sand, Grayville, Edwards and White counties; Bethel sand, South Lawrence, Lawrence County; Rosiclare sand, Salem, Marion County; Pennsylvanian sand, Maunie, White County; Paint Creek sand, Parkersburg, Richland and Edwards counties.

June—Cypress sand, East Flora, Clay County.

Indiana Gets First Osage Oil

The six-month period saw several new discoveries in Posey County, but they proved disappointing on subsequent offset testing. Outstanding development from a potential factor standpoint was discovery of a new horizon for Indiana when the Osage lime produced in the old Hazleton area of Gibson County.

In late April, Kingwood Oil Company's Fithan 1, C E½ SE SE 23-1n-10w, upon finding the Devonian dry in the Hazleton area, plugged back to Osage lime at 2402 feet, and was completed as a combination McClosky-Osage formation well. It initialed 54 barrels of oil and 10 barrels of water. Other similar producers have been finished in Sections 23, 24, 25 and 26.

Two miles north of Mt. Vernon field, Paul Rossi in mid-April completed Mauzy 1, NE NW NW 8-7s-12w, for 220 barrels in 14 hours to look like a big pool opener from Aux Vases at 2609-17 feet. However, offset tests failed and the play soon cooled.

A similar experience occurred following completion of Sinclair-Wyoming Oil Company's Nash 1, SW SW NE 32-7s-14w, 5 miles south and 5 miles west of Mt. Vernon, for 40 barrels in 2 hours from Lower O'Hara at 2739-42 feet. Also disappointing on subsequent offset tests, was a new discovery in Vanderburgh County by Sells Petroleum Company's McCarty 1, NE SW NW 32-6s-11w, wildcat two miles southwest of Evansville, which on pump initialed 7 barrels hourly from Waltersburgh sand at 1718-36 feet.

Wildcat activity in western Kentucky not only was at reduced levels but also disappointing in results. Only new field opened was a shallow unidentified sand at 928-33 feet, in which Sun Oil Company and Kentucky Natural Gas Company completed Tapp 1, 13-N-22, for 22 barrels in 17 hours on the pump.

Midway Headlines Arkansas

South Arkansas put two new fields on the map during the first half of the year, while new sands bearing sweet gas were discovered in three large sour-gas pools.

On the basis of development to date, most important find was Midway, a Smackover lime field in LaFayette County, which started the new year off with a bang on January 1. With 19 successful wells and four dry holes, it has been defined on the south and north, but has shown no tendency to fall off on the east or west. At present the producing area is two miles long but only three fourths-mile wide. It is regarded as a normal lime structure, with a steep dip at right angles to the axis making it longer than wide. Discovery well was Barnsdall Oil Company's E. S. Bond 1, NW SW 11-15s-24w, which initialed 643 barrels on 15/64-inch choke at 6340-70 feet.

Second field to be opened in Arkansas was New London in Union County, where the discovery well, Marine Oil Company's Frost 1, NW NE 13-18s-12w, was completed April 16 through perforations at 5757-67 feet in the lower part of the Cotton Valley formation for 80 barrels daily on 1-inch choke. A west offset, Marine Oil Company's Walton 1,

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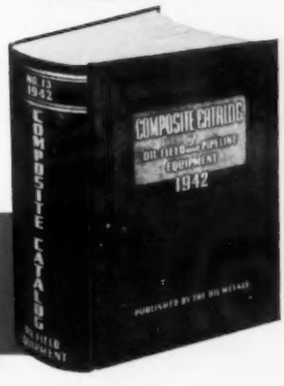

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NE NW 13-18s-21w, immediately opened a new sand, finding no saturation at the depth of the first well but completing from 5716-28 feet in the same general formation.

South Arkansas had three other discoveries, when Cotton Valley sections were opened at McKamie, LaFayette County, and Dorcheat and Macedonia in Columbia County. These fields previously produced only sour gas from Smackover lime, and the new sands were important because they yielded sweet gas.

Under impetus of the new discoveries, exploration will continue at a good pace in Arkansas. Most wildcats will be drilled on the Midway play, which opened a large territory for exploitation. Wildcats are under way in Union, Ouachita, Columbia and Miller counties. Twenty-four lease blocks are held on structural highs in six producing counties.

Kansas Discovery Rate Up

Operators in Kansas succeeded in chalking up 25 new fields, 23 oil and 2 gas, against the 1941 mid-year mark of only 19. Although total drilling in the state was down about 33 1/3 percent, wildcatting was up and therefore the discovery rate was below the efficiency of 1941.

None of the new strikes appear outstanding, and consequently no major change in the state's reserve status occurred.

Exploration for the most part has followed previously established trends. No new producing provinces have been indicated. Field wells and those completed as edge offsets to production have afforded the major increase in new reserve additions.

Kansas, traditionally a "lime" producing state, lived up to its past. With only four exceptions, recent discoveries have been lime pools. Seventy-five percent of the new fields were in Arbuckle or Kansas City-Lansing limes, with miscellaneous discoveries in Viola, Hunton, Mississippi limes, and a few in the LaMotte and Bartlesville sands.

Oklahoma Registers Gain

Oklahoma upped its discovery this year to uncover 30 new fields by mid-year, 8 more than in the preceding year at this time, but from currently available data not a one of the new fields can be earmarked as a class A find. Of the fields found, 14 are flowing, 11 are pumping, 5 are gas discoveries.

All areas and regions had considerable prospecting, and all recorded some new fields. Outstanding among the new discoveries are: Pauls Valley, Garvin County, southern part of the state; East Watchorn, Pawnee County; Liberty, Noble County; Centerpoint, Pottawatomie County; and Brooksville, Pottawatomie County.

Extensions to proven areas have been lacking in importance except in a few cases. Houltke field, Pottawatomie County, has received major extensions to the west and north, and with the addition of Hunton lime as a producing zone, its importance has increased immeasurably. Long active and undefined St. Louis field is still being expanded to include a few more producing acres.

Wildcat effort during the past six months closed with 144 well completions, a 10-percent increase over similar type drilling in 1941.

One New California Field

Discovery of a shallow heavy oil pool on the west side of the San Joaquin Valley, 3½ miles west of the North Belridge oil field, marked the only successful wildcatting effort in California in the first half of 1942.

Completion of Williams 1 by Shell Oil Company was made at 2340 feet with a penetration of 60 feet of Miocene sand. Initial production was 940 barrels daily, 16.4-gravity oil. Current estimates of indicated reserve represented by the

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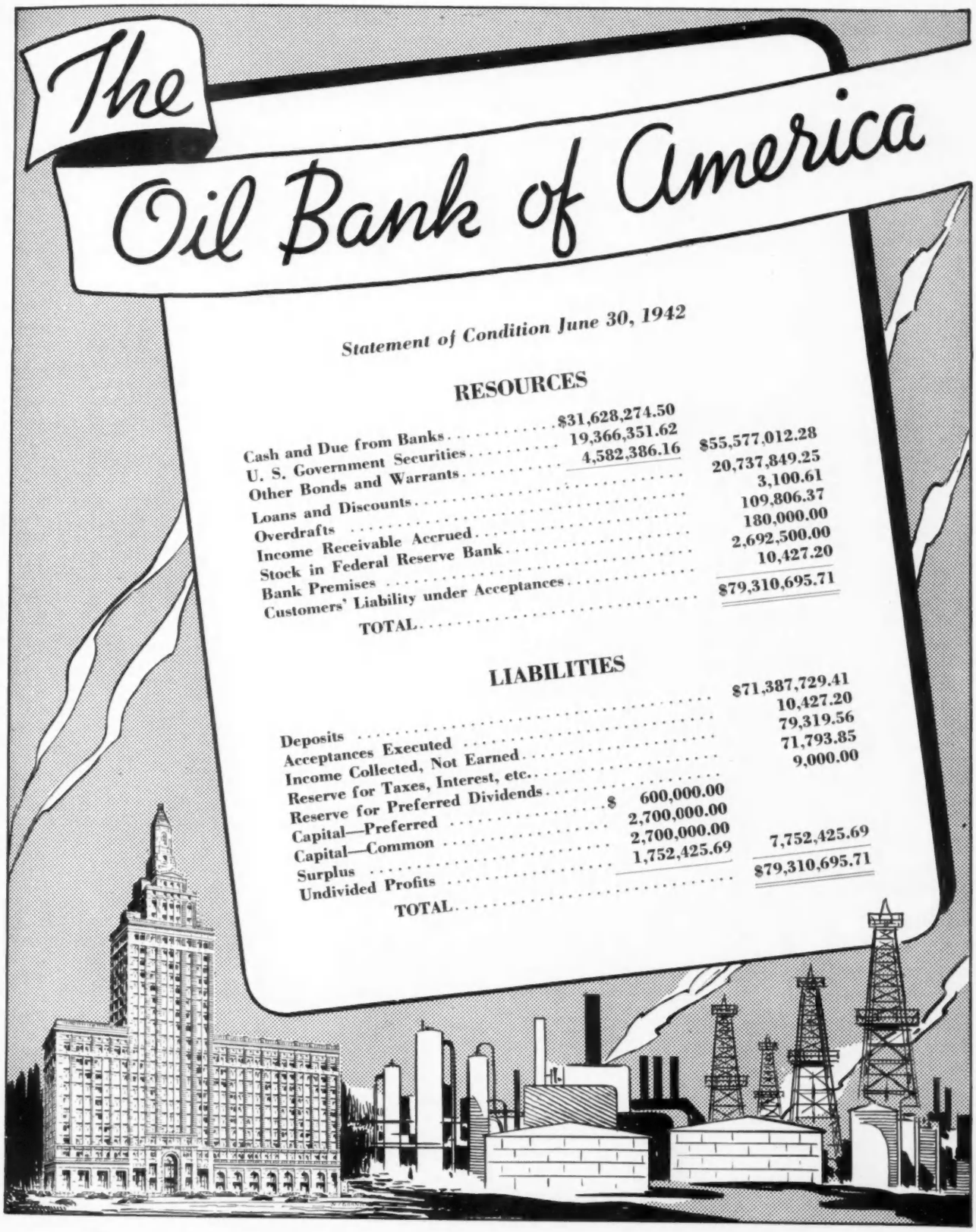

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discovery is approximately 750,000 barrels ultimate recovery.

In the Riverdale-Helm-Raisin City district of Fresno County a number of outpost wells have been completed in producing sands discovered in 1941 but there has been nothing in the nature of a new discovery to mark development operations in that area. In the Jacalitos Hills area of Fresno County also a series of outpost completions have been recorded extending somewhat an area that is considered as representing a small reserve.

In the Los Angeles district, principal development activity has centered in the Newhall-Saugus district where extension wells have been completed at Del Valle and Aliso Canyon. Additional exploration has also been undertaken in the Oak Canyon area but production possibilities in that development are not yet apparent.

Failure to discover any major new sources of heavy oil in California to supplement already known reserves has led to a recommendation by the District 5 Office of the Petroleum Coordinator, following an extended survey, that relief from drilling equipment restrictions be granted for drilling locations in proven fields. The recommendation indicates there are 2685 wells to be drilled to supplement the state's fuel-oil reserve.

The recommendation covers every known proven location in a heavy-oil producing pool which can be drilled on an economic basis and return the required investment. The recommendation calls for 500 new wells in heavy-oil pools in 1942, for 1943 a total of 900 such wells, and 800 in 1944. This would represent an 80 percent increase in drilling for 1943 in heavy-oil areas. Heavy-oil pools are listed as those pools producing oil of 23.9 gravity or less.

California's estimated reserve of crude oil at January 1, 1942, was 3,316,000,000 barrels, of which 897,000,000 barrels was in heavy-oil pools.

Michigan Keeps Pace

Numerically Michigan turned in as many discoveries the first half of this year as for the same period in 1941 despite fewer wildcats being drilled. However, on the basis of actual data from follow-up exploratory work that had been completed at the end of June, not more than two or three of the 1942 finds appear to have any special merit in terms of potential production.

Michigan was credited with 8 oil discoveries and 2 new horizon discoveries the first six months of 1942 contrasted to 4 oil discoveries, 3 gas discoveries and 4 new horizon discoveries the first half of last year.

New horizons developed this year appear now equally important with any of the entirely new prospects but from a long-range standpoint rather than immediate development or production. Ervin Major's Adams 1, NE NE NE 36-19n-3e, Adams Township, Arenac County, completed at 4229 feet in the Monroe horizon for 66 barrels natural and 800 barrels after acid. Although it settled to about a 165-barrel flow and pump average after the first 30 days, it still stands as the biggest producer ever found in the state at 4200 feet. Two offsets have been completed in the same horizon ranging in initial, after acid production, of 45 to 125 barrels per day.

Coupled with other deep drilling developments, both this year and last, the Adams deep well is significant in that it has encouraged deeper exploration throughout the north central basin area. A 1941 discovered field in Richfield Township (24n-1w), Roscommon County, is producing from a comparative zone in the Monroe although after-acid initials have ranged in lower brackets, 25 to 90 barrels per day. At least two other tests have showed or produced in some degree from the same zone.

Undoubtedly some correlation will be worked out between this deeper zone in the Monroe and the shallower Traverse and Dundee formations, the major producers in the state. However, at the present time the relationship from a development standpoint is highly erratic with porosity appearing much more important than position on the main part of the shallower producing structure.

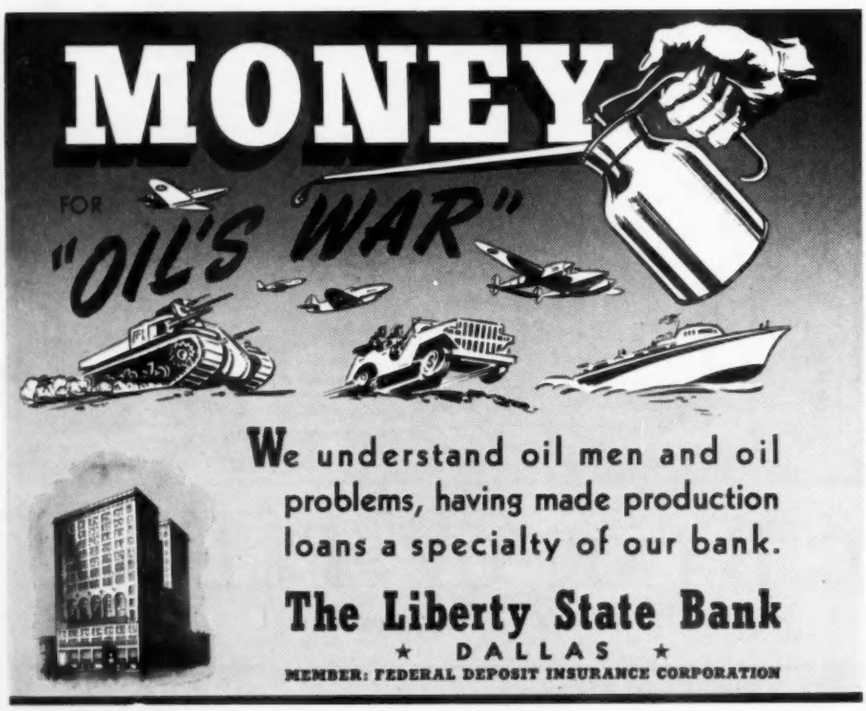
The Monroe formation generally mantles the state and runs up to several feet in thickness. It now offers more in the way of deep drilling than any other horizon. Thick salt beds which come in below the Monroe set up a formidable cost and drilling barrier for other deep zones in the basin, such as the Trenton and St. Peter.

What at first loomed as a promising discovery, Turner Petroleum Corporation's Cavanagh 1, Section 14-21n-7w, Missaukee County, now has been discounted with four offset dry holes completed and no other follow-up work started.

Another field prospect, Sun Oil Company's Arndt 1, Section 23-18n-8w, Osceola County, scored a west offset producer and an east offset failure. None of the other 1942 prospects on the basis of follow-up work appears to have opened other than comparatively small closures of limited production and area.

Because many of Michigan's pools, particularly in the southwestern part of the state, are small closures, both the 40-acre drilling provision and the 2-mile provision for wildcats has held back exploration. There are numerous cases in southwestern Michigan where 1500-foot development has been profitable although the pools contained only three to a half dozen wells bordered by dry holes. The basin already had been converted to 20-acre units almost without exception and most of the new drilling has followed a deferred pattern that will permit drilling of jumped locations after the war.

Extensions have been developed in both the Reed City and Kawkawlin fields during the year to add from 600 to 1000 acres to each pool. However, more oil probably was produced the first half than was found, including extensions and new fields and sands.


MONEY
FOR
"OIL'S WAR"
We understand oil men and oil problems, having made production loans a specialty of our bank.
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MEMBER: FEDERAL DEPOSIT INSURANCE CORPORATION

Seven of fifty-eight tons of scrap rubber in this pile came from oil field operations.

California Is In the Scrap Drive

By STARK FOX

THE oil industry's rubber drive is history; the industry's next responsibility is assuring a steady flow of scrap materials of all kinds to mills and foundries to be converted into war materials. California operators have created an organization to carry out their share of this responsibility for the duration of the war.

California oil companies, under the chairmanship of William F. Humphrey, who is chairman of the general committee for District No. 5, and with P. E. Allen as operative chairman for the rubber drive, spent practically all their time and effort in bringing in rubber during the period of the drive. Results, at the end of the period from June 15 to July 2 (the latest figures available) put California in thirteenth place out of 50, with a per-capita rating of 8.73 pounds of rubber collected per person.

The general salvage campaign, which is to continue for the duration of the war, has already started. The California Oil Industry Salvage Committee, with Paul Shoup as chairman and Lloyd Williamson as vice chairman, has been organized, field committees have been established, and the program outlined to every operator in California. Incidentally, while the specific drive for rubber has ended, the salvage committee will continue efforts to assure collection of rubber, along with its efforts to collect steel, iron, copper, and other needed metallic scrap.

As to the rubber campaign, indications that the oil companies operating in California considered it of vital importance are given by the oil industry rubber goods sacrificed to the drive. The industry turned in drill pipe protectors, suction hoses, gasoline hoses, packing material, belting, and numberless other items which, in other times, would have been kept to be reused in future operations.

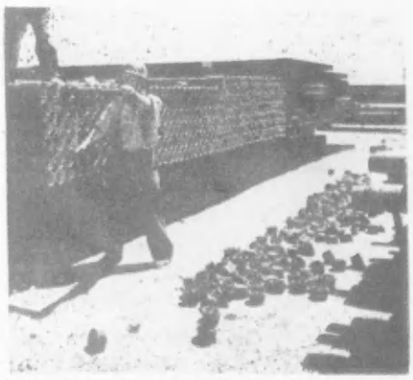
Many of these items were by no means worn out. Detailed figures as to the total tonnage thus collected are not available but, according to Allen, will be compiled and will undoubtedly show that the industry itself compared more than favorably with other industries and with the general public.

Useful Rubber Discarded

There is not a rubber floor mat in an oil company-owned car on the Pacific Coast. There are no rubber seat cushions in executives' or stenographers' chairs; there are no rubber floor mats in an oil company office building. Wholehearted cooperation in the drive marked the industry's attitude on the West Coast, where distances are great, and where the transportation of war workers and all others will be an exceedingly acute problem if gasoline rationing is instituted.

The California industry not only cooperated in the rubber drive; in addition, it developed a number of ideas and methods to stimulate the public into giving up non-essential rubber.

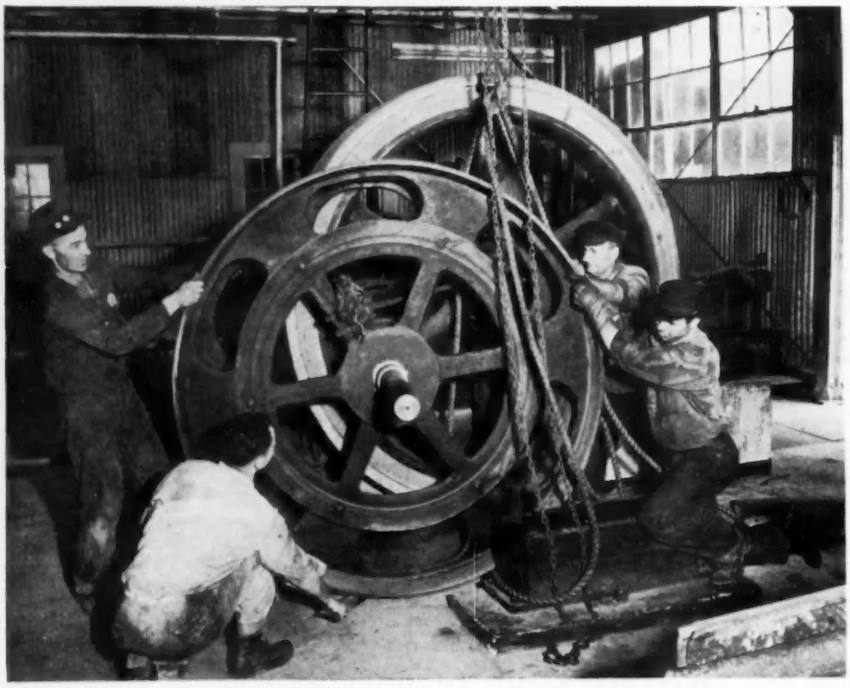
Bakersfield, a San Joaquin Valley town of some 30,000 population, staged



Rubber thread protectors on stored pipe is replaced by grease and the scrap pile grows.

Drill pipe may remain idle for the duration so the rubber protectors go to the scrap pile.

Large amounts of reclaimable rubber is in old drilling hose accumulated in field warehouses.



Standard Oil Company of California is dismantling its repressuring plant on the Murphy-Coyote property. Approximately 60 tons of material will be added to the metal scrap pile. Workmen are shown removing a belt pulley from the engine.

a community dance, enlisting the services of the band at nearby Minter Field, an aviation training base. The dance attracted approximately 12,000 paying customers, and the admission fee was rubber.

The governor issued a proclamation to all chiefs of state institutions and buildings, instructing them to turn in all rubber ash trays, cuspidor mats, worn tires, and everything else made of rubber and not strictly essential to their use.

Two large banking chains issued instructions that all rubber in their offices be turned in.

Everybody Helps

A small mining town, whose wooden sidewalks had been covered with conveyor belting many years ago, removed the belting, and its citizens are again walking on wood.

More than 100 tons of rubber were recovered from the bottom of the deepest gold mine in the world. The mine is in Grass Valley, and it is two miles deep.

Death Valley, a national park and the lowest point in the United States, with almost no permanent residents, contributed 2½ tons.

In Northern California, Boy Scouts were furnished windshield stickers reading "I gave my rubber mat. Did you?" They then "put the pressure" on the owner of every car without a sticker.

Army aid was enlisted at El Segundo, Salinas, and San Francisco, to haul rubber to collection depots.

Sound trucks toured various cities, calling attention to the need.

An airline donated 100 worn-out airplane tires.

Rubber held by citrus grove owners as fuel for orchard heaters against winter weather was collected upon the oil companies' assurances that fuel oil would be available.

A furniture and upholstery store ran advertising in local papers which offered free replacement of all rubber automobile floor mats turned in.

A San Francisco hospital turned in 200 pounds of old rubber nursing bottle nipples and surgical gloves.

A special tire for an experimental dirt-mover was turned in. It cost $2,082.32 and brought $14.22 at a penny a pound.

A retired deep-sea diver turned in his diving suit: 75 pounds of rubber.

Service stations closed from noon to 6 p.m. on Thursday, July 9, and attendants scoured their neighborhoods for rubber.

These are illustrations of some of the means used by the California oil industry to stimulate collections, and some of the sources from which rubber came. Newspapers, billboards, and radio all carried information concerning the campaign, and the California industry was the first to direct attention of the public to the necessity for sacrifice; to the fact that just worn out garden hose, old tires, and other useless items would not meet the need.

One statement, issued by the War Council and widely quoted over the radio and in the press in California, was quoted from a wire to W. R. Boyd, Jr., from R. M. Blodget, which said, "I have closely studied the little piles of rubber at our gasoline stations and I see no signs in the character of articles donated that anyone has explored the hazards of the future or weighed his liberties in the scales alongside his contributions."

In the wire, Blodget, who is execu-

Photo courtesy Shell Oil Company

Bull wheels, calf wheels, axles, and other scrap on its way to the mill from Shell Oil Company of California.

Photo courtesy Shell Oil Company

Old freight cars which used to haul carbon at Shell Oil Company's Wilmington refinery are burned, releasing all metal for scrap.

tive vice president of Oil Producers Agency of California, but who made it clear that he was expressing his personal opinion, pointed out that he had not found on any rubber scrap pile any sign of sacrifice and made the observation that people who contributed only trash to their country at a time of war were not deserving of fulsome praise, according to the War Council release.

Similar expressions of the necessity for sacrifice were made by others active in the drive in the Fifth District, which was organized after the pattern followed throughout the nation.

William F. Humphrey, Tide Water Associated Oil Company and chairman of the general committee for District 5, was also chairman of the rubber drive; P. E. Allen, Tide Water Associated, was operative chairman; L. G. McLaren, Shell Oil Company, was assistant operative chairman. Other chairmen were R. L. Phillipi, Union Oil Company, publicity; L. G. McLaren, operations; J. H. MacGaregill, Standard Oil Company of California, organizations; A. C. Stewart, Union Oil Company, industry associations and industrial accounts; O. W. March, Signal Oil & Gas Company, governmental; A. H. DeFriest, General Petroleum Corporation, agricultural; Bert DeVere, Pathfinder Petroleum Company, wholesale and junk dealers; D. E. Beaton, The Texas Company, finance and accounting; C. A. Johnson, Holly Oil Company, miscellaneous. Under the latter, committees for independent producers and refiners were set up, to coordinate their work with the overall program.

In addition to the functional aids, there also were area chairmen. These were H. D. Maxwell, Maxwell Petroleum Company, Alaska and Western Washington; B. C. Gibson, Shell Oil Company, Eastern Washington; W. H. Ramsey, Union Oil Company, Oregon; T. G. Travis, Standard Oil Company, Northern California; P. J. Pieroth, Shell Oil Company, Southern California; A. Martin, Shell Oil Company, Nevada; E. M. Crowe, The Texas Company, Arizona; C. W. Turner, Standard Oil Company, Hawaii, and in addition, many of the companies appointed company chairmen, whose responsibility was to see that the company itself participated in the drive to the fullest extent.

Continuous Salvage Organization

A different type of organization plan has been developed for the continuous salvage campaign for all usable scrap materials. This organization is broken down geographically, rather than functionally, with a central committee, the California Oil Industry Salvage Committee, to coordinate efforts of regional chairmen and their committees. The central committee was organized last May under the supervision of M. R. Singleton, Salvage Director for the Petroleum Industry, Bureau of Industrial Conservation of the War Production Board, but as early as last January, California oil associations had been conducting a joint educational campaign within the industry pointing out the need for scrap iron and steel, and other types of scrap material, through the issuance of a series of bulletins describing the situation.

With the formation of the California Oil Industry Salvage Committee, however, a system of report forms has been devised, by which all operators are requested to make monthly reports to the War Production Board, detailing the tonnage of their shipments, to whom they were sold, and of what they consisted. A request that an estimate of the tonnage to be made available during the remainder of the year is also included on this form.

In the opinion of many operators in California a normal flow of scrap from the oilfields will not meet the war need. Most of the companies familiar with the situation are convinced that actual demolition of idle or stand-by equipment will be necessary if steel mills are to be kept supplied with sufficient scrap. While no California steel mill has yet been forced to close down because of lack of scrap, current demand is 101,000 tons per month, with additional demand after the first of next year when several new steel mills will come into operation. Current figures indicate that the scrap stock-pile is holding its own, but with new demand of next year, additional scrap will be essential.

That a number of oil companies operating in the state are fully aware of

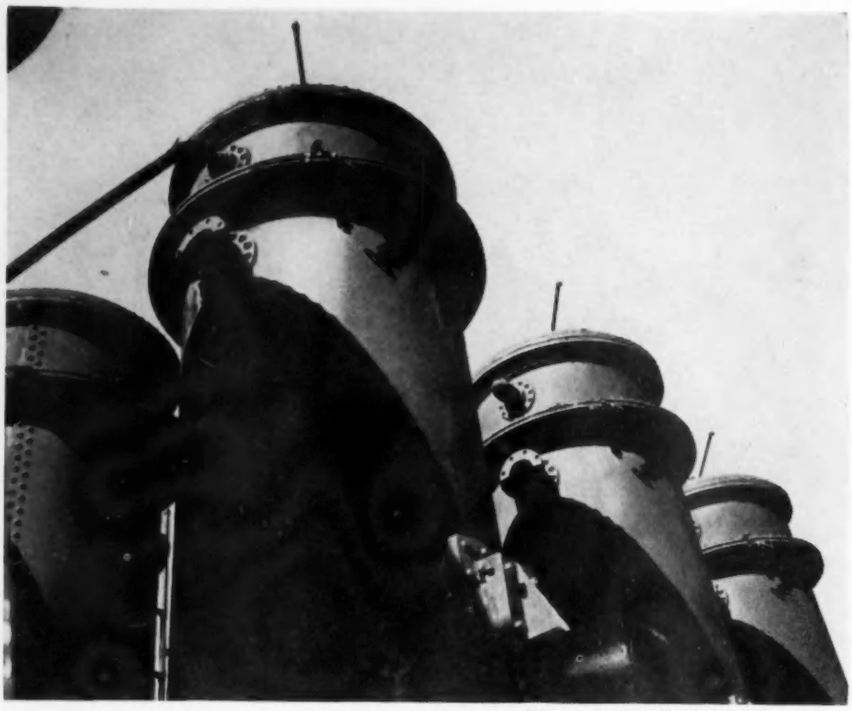


Photo courtesy Shell Oil Company

There are 12,700 pounds of iron in these heat exchangers. They will be torn down for scrap.

this situation is indicated by the change in policy of two of the larger units, in which demolition and dismantling of idle equipment is underway and in which further demolition will take place during the year.

Shell Oil Company, through its manager of purchasing and stores, S. T. Covell, has stated the new point of view adopted toward scrap steel, iron, and other "junk." "Before the country's need for scrap became pressing," he said, "a storekeeper who wanted to get rid of any material had to prove it was junk. Today, when a department wants to keep any material, it has to prove it is not junk.".

Accompanying photographs indicate the way in which Shell is putting this policy into effect, with the wrecking of old freight cars, a water plant, heat exchangers, and other material which, in normal times, would probably not be touched.

Standard Oil Company of California has maintained a centralized salvage department since 1931, but while it was established to reclaim material that might be reused by the company itself, its present direction is toward making all possible scrap material immediately available to the war effort. To further this activity, the company has appointed a conservation specialist, who keeps in constant touch with all superintendents, plant managers and engineers, so that all usable material is immediately reconditioned, and all unusable material is immediately entered into the flow of scrap to the mills.

This company has also adopted an active demolition policy, which will release a much greater than normal amount of scrap. Accompanying photographs show the dismantling currently in progess in a compressor plant formerly used in a repressuring project on one of the company's Los Angeles Basin producing properties.

Two questions which have not yet been answered to the satisfaction of a number of operators in California are: "How can I be sure that the material I turn in to the 'junk man' as scrap will actually be sold to mills as scrap and not held as reclaimable equipment?" and "In view of the difficulty of getting new equipment, how completely should I strip myself of possibly usable material?" There appear to be no present flat answers to either of these questions, but as to the first, the reports being sought from operators concerning their shipments of scrap and to whom it was sold are expected to be helpful.

In the case of the larger operators with reclaiming and salvage departments of their own, the question is not bothersome, since they reclaim all material which will be of value to them and the remainder can be classified in no other way than as scrap, but smaller units without such departments, whose desire is that all material they turn in be immediately forwarded to a steel mill, have expressed some concern in the matter.

At least one operator requires any dealer to whom he sells scrap to sign an affidavit that the material will be immediately sold to a mill, but other operators appear not to be entirely satisfied with this method.

Having been organized under the supervision of the War Production Board, as is explained in a letter from the Commtitee to all California operators, the California Oil Industry Salvage Committee has passed the WPB's sug-

Photo courtesy Shell Oil Company

Shell Oil Company maintains continuous collection of scrap materials by having these bins throughout its properties.

gestions as to intra-company organization along to the industry. The suggestions, contained in a letter signed by Charles H. McArthur, chief of the Industrial Salvage Section, Bureau of Industrial Conservation, WPB, and addressed to operators, are:

"1. Put some one individual in charge of salvage throughout all departments of your business and give him authority to act now.
"2. Devise an effective method of bringing the message of conservation to *all* of your employes.
"3. Build into your plan a program to keep it alive. Don't let initial enthusiasm die. This is a continuing effort.
"4. Report to the bureau what action your organization may have already taken to 'Get in the Scrap,' or the action you plan to take in response to this request. Thereafter please report periodically the amount of critical scrap materials you have disposed of, stating quantity, kind, and to whom sold or delivered."

The first suggestion contained in McArthur's letter is amplified by a copy of a "program prepared by the salvage director of one oil company," as the copy is titled and furnished by WPB.

This program follows:

"General Objective

A. The objective is to determine whether assistance could be rendered to National Defense by making available tonnage of scrap iron and steel, nonferrous metals, rubber, cotton and woolen rags, waste paper, etc., by the modification of existing methods of scrap collection and scrap sale and/or by possible adoption of more radical dismantling or scrapping programs.

Recommended Basic Factors Governing the Approach to the Objective

A. The amount of "savings" to be directly realized through prices received for scrap materials, while a factor needing consideration, ought not to be the dominant one.
B. All materials and plant equipment not in active service should be studied for salvage, except storehouse active stock, "insurance" items, purely temporarily idle items, etc.
C. Questionable idle items ought to be presumed free and available unless otherwise proven. The burden of proof should be on the side of retention.

Specific Items for Discussion

A. Existing methods and scopes of collecting various kinds of scrap in each of the works or divisions.
B. Existing methods of operating the reclamation and scrap disposal yards—the segregation of scrap by classes, kinds of material, study of the amounts on hands, etc.
C. Storehouse obsolete stocks — the disposal of existing items and a study to determine if additional ones exist.
D. Plant idle equipment—over, on or under the ground.

Suggested Procedure

A. Each works or division should designate one member of its management (the executive in charge of mechanical work, or his immediate assistant is suggested) to personally and actively represent that unit.
B. The undersigned will call at each unit in person and discuss the subject with the appointed man above mentioned.
C. Prior to such visit, it is suggested that lists of all plant idle equipment and any other advance data be prepared."

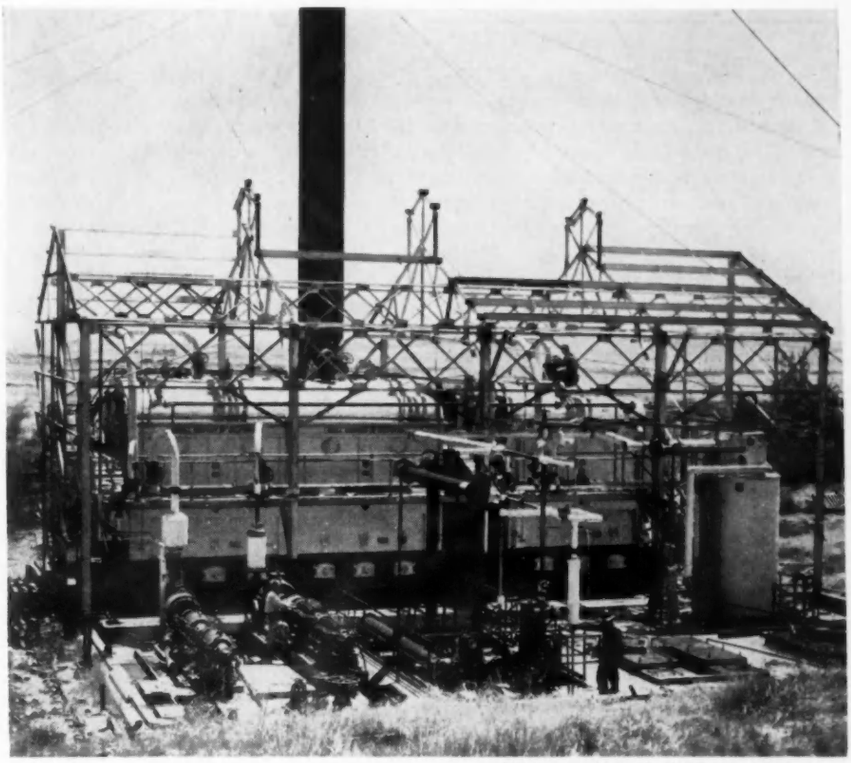


Photo courtesy Shell Oil Company

This water plant is being torn down for scrap by Shell Oil Company. It is in the company camp at Oilfields.

Report forms included with the letter to operators provide for the information requsted in the fourth suggestion in McArthur's letter. These reports will be gathered under the supervision of Lloyd Williamson, president of the California Star Oil Company, and vice chairman of the California Oil Industry Salvage Committee.

The Committee is made up of 24 men, all of them active in some phase of the California oil industry except the chairman, Paul Shoup, who is president of the Merchants and Manufacturers Association, but who has been actively identified with the oil industry in the past through Tide Water Associated Oil Company. Committeemen, in addition to Shoup and Williamson, are: A. C. Rubel, vice president of Union Oil Company of California; W. C. Whaley, vice president of Barnsdall Oil Company; W. C. Dayhuff, president of California Natural Gasoline Association; D. B. O'Neill, general manager of Independent Refiners Association of California; Rush M. Blodget, executive vice president of Oil Producers Agency of California; Richard Fenton, executive vice president of California Stripper Well Association; Dana Hogan, president of San Joaquin Valley Oil Producers Association and president of Hogan Petroleum Company; F. E. Foster, managing director of the California Oil and Gas Association; J. A. Smith, president of the Independent Petroleum and Consumers Association; Ralph B. Lloyd, president of California Oil and Gas Association and president of Lloyd Corporation; Martin Meers, Tide Water Associated Oil Company; Geo. Trembley, vice president of Howard Supply Company; L. L. Aubert, president of Bankline Oil Company; W. H. Morgan, vice president of R. R. Bush Oil Company; H. F. Owen, Berry Oil Company; E. E. Pyles, chairman of the Production Committee for District 5; B. E. Devere, president of Pathfinder Petroleum Company; C. A. Johnson, president of Holly Oil Company; L. A. Cranson, vice president of Honolulu Oil Corporation; Floyd Bryant, assistant to the president of Standard Oil Company of California; J. Grover Kelley, treasurer of Hillman-Kelley, Inc.; Geo. Suman, Tide Water Associated Oil Company.

This committee will generally supervise the work of 12 district chairmen, whose activities will be concentrated in the districts in which they operate. Some of the committee members are also serving as district chairmen.

[*Continued from page 13*]

public directly through special taxes on oil products, the money from which would be put into a special fund. The proposal, which also had been voiced in congress, was seen, however, as putting a heavy burden on oil, and the sentiment was summed up by Coordinator Ickes, who said that "If I were in the industry, I suspect I would not favor more taxes on gasoline or oil if there was some other way of meeting costs." Ickes reiterated his belief that the increased costs of transportation are "overall war costs" which should be borne by the Treasury.

The study of the new factors which have arisen as a result of war will be made by a special committee of 12, of which John G. Gill of The Atlantic Refining Company, Philadelphia, will be chairman and which will consist of the general chairmen of each of the five districts, namely:

John A. Brown, president, Socony-Vacuum Oil Company, New York; Frank Phillips, chairman of the board, Phillips Petroleum Company, Bartlesville; Charles F. Roeser, Roeser & Pendleton, Fort Worth; W. H. Ferguson, executive vice president, Continental Oil Company, Denver; and William F. Humphrey, president, Tide Water Associated Oil Company, San Francisco.

In addition, Chairman Boyd also appointed to the committee: W. Alton Jones, president, Cities Service Company, New York; B. I. Graves, vice president, Tide Water Associated Oil Company, New York; B. L. Majewski, vice president, Deep Rock Oil Corp., Chicago; Frank Buttram, president, Independent Petroleum Association of America, Oklahoma City, Okla.; A. Jacobsen, president, Amerada Petroleum Corp., New York; and Dan Hovey, president, Gulf Coast Refiners Association, Houston.

The committee will hold its first meeting in New York City on Monday, July 20.

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TAXES: Retaining the present percentage depletion and option provisions for oil wells, the 1942 revenue bill went to the House of Representatives July 15 for quick passage on to the Senate so that the House may take a brief "fence-building" vacation while the Senate Finance Committee wrestles with the six-billion-dollar measure.

The only tax change directly affecting oil proposed by the Ways and Means Committee was an increase from 4½ to 6 cents per gallon in the levy on lubricating oils, which is expected to yield an additional revenue of $13,900,000 a year.

On the other hand, the committee restricted the tax on transportation by pipe line to exempt any movement through lines of pipe within the premises of a refinery, bulk plant, terminal or gasoline plant, if the movement is not a continuation of a taxable transportation, and specified that the crossing of rights-of-way, streets, highways, railroads, levees or narrow bodies of water, in connection with such movement, shall not of itself make the movement taxable.

Nevertheless, every member of every branch of the oil industry is scheduled to dig deep from now on to pay the increased taxes for which the bill provides on earnings of individuals and corporations—among them an 87½ percent tax to be applied to every cent of corporation excess profits and individual tax rates starting at 13 percent and reaching 82 percent with head-spinning speed.

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FOREIGN: Activities of OPC last week took on a world-wide aspect, with issuance by Deputy Coordinator Davies of a memorandum outlining the functions of the foreign division "to coordinate action on the many complicated and overlapping phases of foreign petroleum problems in a manner that will assure the availability of the required kinds of products and operating material at the right time and in the right places outside of the United States, in quantities which so far as possible will meet war demands and the foreign petroleum industry's necessities."

The division will have authority with respect to all kinds of material and all types of products except 100-octane gasoline, which now is handled by a subcommittee of the munitions assignments board. Primarily, the division will be the liaison in all matters of foreign policy and operation between the OPC and other governmental agencies.

Another duty of the division will be to collaborate with various other agencies in the preparation of such material as enemy oil reports, demolition and rehabilitation of foreign facilities, geological and engineering surveys of foreign production areas and potential areas, the construction and maintenance of foreign pipe lines, refineries and proposed projects for development of foreign petroleum economy.

☆

PRIORITIES: A new procedure for obtaining higher priority ratings for materials required to complete projects already underway was outlined last week by Deputy Coordinator Ralph K. Davies.

Davies explained that heretofore when a contractor could not complete his construction work for lack of materials which were delayed in delivery because the original priority rating no longer was high enough, the contractor applied for a higher rating on Form PD-1A.

Now, he said, application for higher priority rating need not be made on that form, but the procedure will be for the contractor to write a letter in quadruplicate in which is listed all material items requiring a change in preference rating status. This will permit requests for all changes in rating to be made in one application, whereas previously a separate PD-1A form had to be made out for each class of items.

In compiling the list of materials in the single application, under the new procedure, applicants should itemize the materials in accordance with the PD-200 materials list, and the letter also should include information showing the builder's serial number, item number, unit of measure, quantity, price, and use of item; latest delivery date permissible, and preference rating required by the supplier to meet the delivery date.

Synthetic Rubber

[*Continued from page 14*]

and Butyl rubber and the showing of a new motion picture explanatory of the molecular changes occurring in the various materials used for the making of rubber.

Costs

The 700,000-ton production of Buna S planned, Farish estimated, will require $81,900,000 worth of grain for production of 210,000 tons of butadiene and for a portion of the raw materials for styrene; $9,900,000 worth of benzol from the coal industry for most of the raw material for styrene and a small amount of butadiene, and $22,300,000 worth of refinery gases from the petroleum industry for 325,000 tons of butadiene and some of the raw materials for styrene.

On the whole, he declared, synthetic rubber will be better than natural after present "bugs" have been eliminated; Butyl tires today are good for at least 60 percent of the mileage of natural

rubber, and Buna tires consistently give better service than natural rubber under normal road conditions.

Buna rubber initially will cost about 30 cents a pound when made from butadiene out of petroleum, but may be cut to 20 cents or less when the plants are running with maximum efficiency. Butyl will start with a cost of about 20 cents a pound and may eventually get down to somewhere between 10 and 15 cents.

Cost of constructing plants has been reduced materially, Farish said. Butyl plants originally estimated to cost as high as $750 per ton are now expected to cost about $350 a ton of annual capacity; Buna plants, originally estimated to cost $1000 a ton now are figured at about $600.

Civilian Rubber

The government rubber program will probably take care of military needs, Farish said, but the great element of doubt is what is going to occur to essential civilian transportation.

"In the oil industry we came to the conclusion a few months ago that a solution had to be, and could be, found, and that the way to do it was by 'makeshift plants'—using spare equipment we had and odds and ends of junk to patch up temporary facilities which would turn out rubber and rubber raw materials," he explained.

"In the case of Buna rubber, which is the basic type, the bottleneck was butadiene production. If more butadiene could be produced quickly, the entire program could be speeded up by several months.

There will be some expense in throwing this makeshift equipment together, and operations will be inefficient and the butadiene will cost more than when made in properly designed new plants, he admitted. "But the important thing," he insisted, "is that the oil industry is actually going to be able to produce some real amount of butadiene by these methods well in advance of the regular program, and since butadiene is the bottleneck that means just so much additional rubber."

A similar approach has been worked out for Butyl rubber, and a practical solution of the problem is anticipated before the end of the year. This work will involve the expedient of using dry ice as a refrigerant. The product is called Flexon which, he admitted "is still sometimes pretty bad" but which, he claimed, will be better than reclaimed rubber for tires and will be improved.

Metal Requirements

In his report on the synthetic situation, Nelson told the Senate subcommittee that the present 800,000-ton program calls for 122,000 tons of steel plate, 210,000 tons of other steel, over 7000 tons of copper, bronze and brass, and about 170,000 horsepower of compressor capacity. All are highly critical items, and pressure for them for other vital uses is so great as practically to limit the boundaries of the war production program.

The most critical shortage affecting the rubber program is in air compressors. Thirty-seven percent of the total compressor production for the last quarter of this year and 22 percent for the first quarter of 1943 will be needed for rubber.

Nelson, arguing against legislation setting up an independent rubber supply agency, warned that the material situation can be dealt with only by centralized control and "any dispersion of that power between separate agencies would tend to obstruct the progress of the war effort."

"That bill further would impose a legislative obligation to supply rubber for non-essential civilian needs," he stated. "We cannot afford to do that at this time. The production program must be carefully adjusted to our supply of materials in order to keep the proper balance between military, foreign and domestic needs. The requirement that critically scarce materials be taken from the production of essential munitions to the production of non-essential civilian goods would hold great danger of impeding the war effort.

"Moreover, the bill, by requiring that production of all additional synthetic rubber be from agricultural products as the basic raw materials, would freeze decisions involving complicated technical factors when progress of the art may later be shown to be only in its initial stages. I doubt the wisdom of that course of action."

PIWC Report

Rubber also was a major subject of discussion at the monthly meeting of PIWC, which had before it a report of its committee on synthetic rubber that, according to present plans, the government program by the beginning of the year will have a manufacturing capacity about 125,000 tons a year in excess of the butadiene capacity expected to be reached at that time.

To meet this situation, the report said, the industry and OPC have devised the "quick butadiene" program to utilize existing refining facilities temporarily to make butadiene by all possible means.

A technical subcommittee, under the chairmanship of Dr. T. G. Delbridge of The Atlantic Refining Company, already has begun the rapid organization of refinery facilities in each section of the country, and in the Gulf Coast area alone, Chairman W. S. S. Rodgers of the synthetic rubber committee disclosed, it is hoped that proposals already in the formative stage will furnish capacity for the production of 90,000 tons of quick butadiene annually by January 1, next, and the other districts will make substantial, but as yet unestimated, contributions.

The committee also reported on a new program to increase the manufacturing capacity for styrene, involving the production of ethylbenezene, an intermediate material, without the use of aluminum chloride catalysts, which are critical materials, by a new process developed by The Atlantic Refining Company which the technical subcommittee has recommended to the Rubber Reserve Company.

The report discussed Standard Oil Development Company's "bath-tub" rubber—Flexon—which it said has impressive possibilities as a stop-gap for increasing the rubber supply for next year, but that such stop-gap plants should not be expected to operate with any degree of efficiency, which can be attained only by plants that would require large quantities of critical material and machinery and considerable construction material and time.

A possible solution of the emergency may be the recently-publicized Houdry process for making quick butadiene, the council was told. The committee will receive a definite report on that method within a few days and, it was promised, will give it careful study.

The first outright admission that an effort is being made to keep the nation's automobiles on the road came from Secretary Jones July 15 when he told the Senate subcommittee that the representatives of the various agencies comprising a committee on the rubber program "have for several months been studying means of supplying temporary substitute tires."

The Secretary denied any discrimination against the use of grains for rubber but, he said, "we would never get any considerable synthetic rubber if we jumped from one process to another every time an oil company or alcohol company or an inventor, however patriotic either may be, wanted the government to adopt their process," and pointed out it was not until last May that the alcohol production situation improved sufficiently to allow any allocation of grain alcohol for rubber.

PRACTICAL OPERATING *Hints* FOR

THE practical operating hints for the drilling rig, production man and pipeliner, appearing regularly in these pages, are secured from oil operations everywhere and offer suggestions that will help to improve operating efficiency and safety.

The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, The Oil Weekly, Houston."

1. V-BELT DRIVES

Drill Pipe Spreaders Adjust Pump Setting

EASILY controlled and ample tension on the V-belt drive between mud pumps at ground level and prime mover on the elevated rig floor, may be obtained by making screw jacks out of short sections of drill pipe.

Each jack consists of two short lengths of drill pipe connected by a collar. The thread of one end of the jack, and that of the corresponding end of the collar are cut left-hand, permitting the jack to be elongated or retracted by rotating the collar. One-inch holes through the collar permit the use of a crowbar or steel rod in adjusting the jack to provide any desired bolt tension.

In the set-up shown only relatively short jacks were needed, but the same principle may readily be applied to braces or supports on other parts of the drilling rig.

Short sections of drill pipe, threaded right and left are used with companion collar to permit accurate tensioning and alignment of mud-pump V-belt drive from power unit take-off on rig floor.

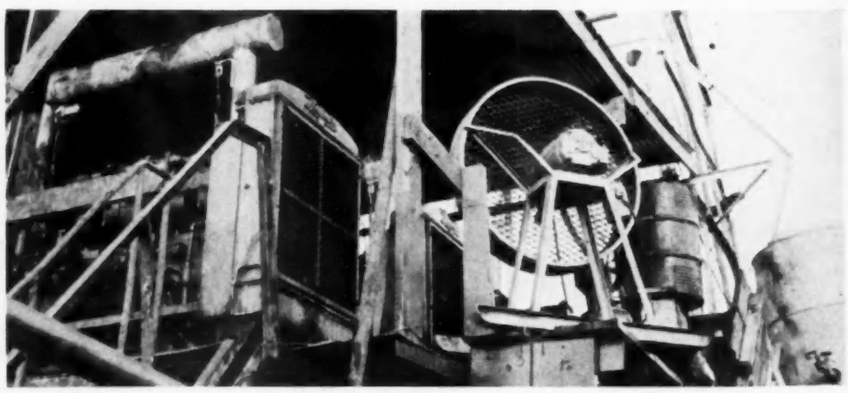
2. OPERATING

Angular Fan Setting Clears Radiator Air

DURING the summer, engines on drilling rigs often become overheated, due primarily to bugs or insects in the air circulation channels of the radiator core.

One operator uses a bug-blower fan to good advantage by installing it near the front of the radiators of each bank of engines. It is set at about a 45-degree angle, so the air blast will tend to deflect the flight of insects before they can be sucked into the radiators. At the same time, the blower helps to keep the air in circulation in the general vicinity of the engines, a particularly worthwhile factor when the engines are under a roof.

With this arrangement, not only do the engines run cooler, but fewer manhours are expended in the task of removing the accumulated insects. Since it usually requires a rod or wire to clean out the air passages, that job often results in the inadvertent puncturing of the thin water channels, necessitating in turn a shut-down to repair the radiator.



Mounting a screen unit outside the derrick floor, to blow athwart the radiator screens has been found to carry much of the insect life past the units, and to prolong periods between cleanings.

3. LIGHTING

Spring Mounted Units Improve Cellar Work

ONE drilling contractor in the Haynesville field of North Louisiana erects floodlights in various places about rig and boilers to illuminate areas where crew members often work. Typical lights are suspended in the inside corners of the derrick, turned toward the blowout preventer and other valves on the casinghead, to allow night work, incidental repairs or emergency manipulation of valves with full illumination, aiding workers to perform important tasks quickly and with less hazard and chance of personal injury.

Connected to the main electrical system which supplies lights to the rig, rubber-insulated wiring is fastened to the top girders of the substructure, and follows them to the corners where lights are placed. Wiring is stretched tight and fastened by light line to the girders in several places to prevent slack or motion which might wear the insulation and cause short circuiting. At each corner of the derrick, the wiring connects directly with the floodlights.

Lights are fastened to any convenient overhead member, such as a girder or one of the various pipes, and hang

THE DRILLING RIG

Spotted at corners of substructure, shielded floodlights provide ample illumination.

vertically. To lessen detrimental effects of vibration in the rig members, the bases of the lights are attached by means of two or more coiled springs, which are fastened to the supports. The springs absorb vibration.

Lights are set in sockets which permit turning in any direction in spotlight fashion, although they are normally placed with beams directed on the casinghead.

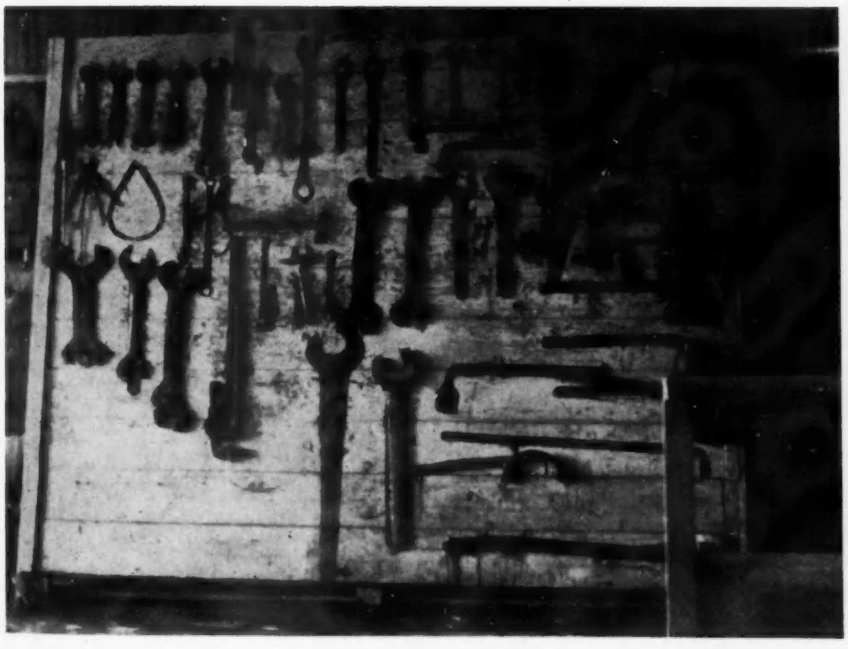
4. TOOL CARE

Portable Rack Helps Speed Overhaul Jobs

RACKS may be built for tools, light enough and sufficiently sturdy to permit convenient moving about the rig. Such a rack may be made of 1 x 6-inch boards nailed to a light wooden frame to form a flat about 8 feet long and 6 feet high, reinforced by a rim of 2 x 4-inch planks. The board is leaned backward at a slight angle, and is mounted on frame with base about three feet wide.

A board of this type should be painted a light color, and against that background, tracings of various tools are painted black in the position in which each tool is designed to be placed. Nails or appropriate hooks are inserted into the board for supporting the tools in their proper places, with the correct location for each tool easily determined by its outline on the board.

The device is sufficiently light to permit portability about the rig, allowing workers to place it where most needed as conditions change. Tool maintenance is also improved, as a tool is easily missed when its proper space is vacant, and at a glance, a driller can ascertain whether all tools are in their proper positions on the rack.



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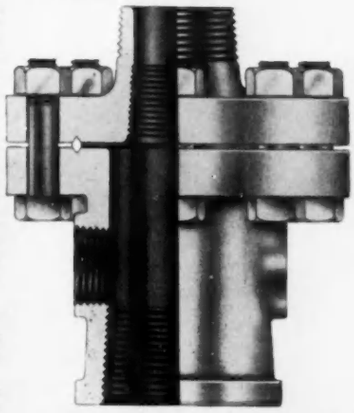

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PRACTICAL OPERATING *Hints* FOR

1. PIPING

Jacket Forms Guard Around Steam Line

Light pipe shield spot-welded to steam line or bolted to fitting flange permits air cooling.

PROTECTION of steam lines from accidental contact by men in the plant is secured by one company through the installation of jackets of light pipe around the hazardous sections. Slipped over the line during installation, or split and welded in place over pipe already in place, the jacket is formed to allow an annulus of at least an inch between steam line and jacket.

With supports at both ends of the jacket providing apertures for air circulation, heat from the steam line sets up a natural current within the open space which prevents the jacket from becoming overheated by radiation, and maintains it at a temperature where accidental contact would not cause burns.

Terminating the jacket a few inches above ground level prevents corrosion at this point, and provides free access of cooling air without impairing the protective value of the device.

2. MATERIALS HANDLING

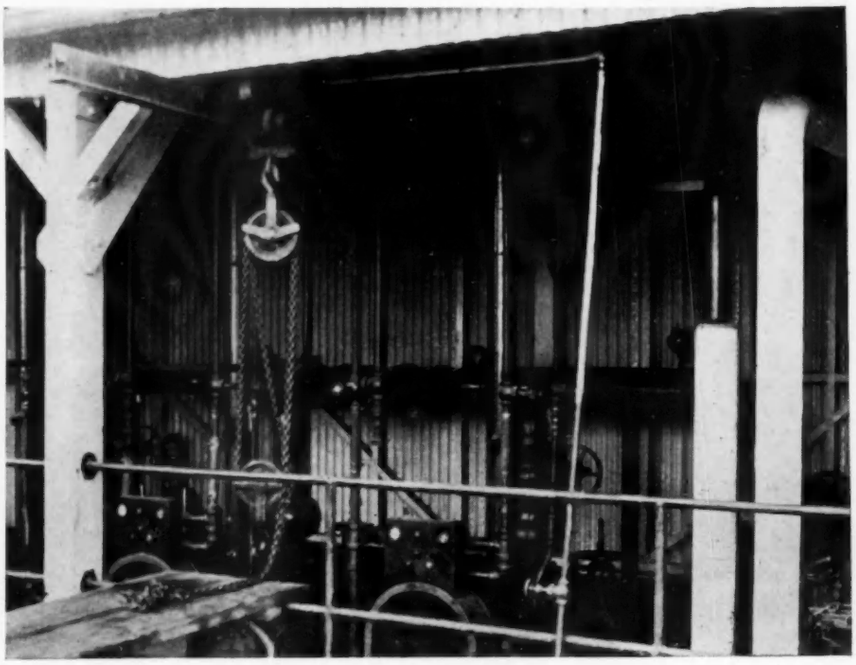
Removable Track Unit For Overhaul Hoist

WHEN several pieces of similar equipment are employed which require periodic removal for overhaul or replacement, a practical trolley track for the chain hoist is of considerable help.

The track, formed from paired angle irons bracketed from the station roof members, extends out from a point above the units to outside the building to permit loading.

The rail is fitted with a heavy hook for attaching to the wall plate and with a slip hook at the roof line which permits engagement over any unit which is to be worked on. By means of the two hooks and the wide flat bearing surface provided at the wall plate the rail is held rigidly yet may be removed or shifted without deranging lighting or other overhead fixtures.

The trolley running on the rail is removable for shifting track, simply by taking out the stop bolt put through the outer end of the track, enabling the track to be shifted without hazard.



Carried on wall plates and suspended from roof trusses, this extension trolley rail permits transfer of equipment from truck to bedplate without interfering with adjoining units.

3. PIPE STRAIGHTENER

Anchored Post Aids Hand Reconditioning

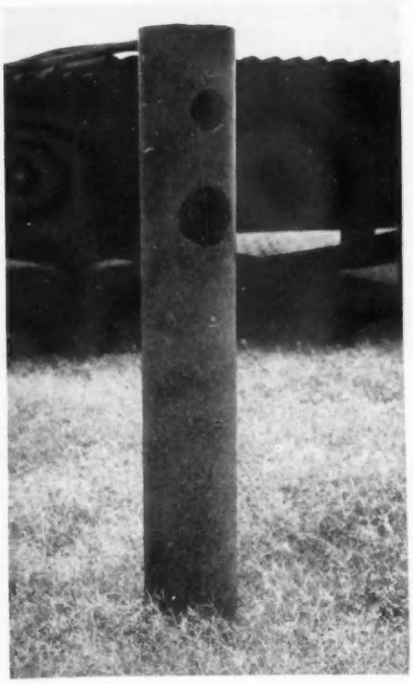
IN FIELDS where pipe-line workover jobs are often necessary, pipe is sometimes bent in handling. A simple straightener may be constructed for such pipe, permitting reclaiming of many joints.

A joint of 7-inch casing may be used as body for the straightener, and should be at least 8 feet long. In one end of the pipe, two holes, located several inches apart, are cut through both walls, being about 2½ and 3½ inches in diameter, respectively. In the opposite end of the casing, several smaller holes are drilled, and through these are inserted joints of sucker rod about four or five feet long, and extending from the casing in all directions.

A hole is dug at the site chosen for mounting the straightener, about 4 or 5 feet deep, and wide enough to accommodate the sucker rod extending from the pipe. The device is set vertically and concrete is poured about the base, the remainder of the hole being filled in with dirt. After the concrete sets, the device is firmly anchored in the soil.

Pipe to be straightened is inserted in the hole of the appropriate size in top of the section of pipe. One man is usually able to straighten bends in the

THE PIPELINER



Holes through vertical casing accommodate sizes of pipe permitting hand manipulation.

ends of 2-inch pipe, while 3-inch pipe is serviced satisfactorily by several men, or by employing aid of a truck or winch. The device is set firmly in the ground to withstand considerable tension.

4. OPERATING

Auxiliary Bug Screen Cuts Radiator Losses

CLOGGING of the radiator cooling passages by insects and bugs led to fabrication of an auxiliary screen of ordinary 16-mesh window screen cloth, mounted on a light wooden frame. A wire loop at the top provided for supporting the unit from the radiator-fill spout, although suction through the mesh was ample to hold it firmly against the larger wire screen built in as a part of the radiator unit.

Since the bugs were worse at night, at a time when air throughput of the radiator could be reduced, the screen could be placed at sundown, and removed early the following morning without the accumulation of bugs causing sufficient air volume reduction to promote overheating troubles.

During the day the screen could be hosed down or brushed off and made ready for use the following night.

When cutting radiation loss during the winter, the frame served as support for a strip of canvas, which could be adjusted to cut off as much of the radiator area as desired, the shield being held in place by fan suction at whatever height it was set.

Ordinary 16-mesh steel screen, tacked to light wooden stretcher, is placed over radiator at sundown, intercepting bug swarms and protecting radiator passages. Screen is cleared during day.

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The Week's News

Contracts Awarded for Big-Inch Line Construction

Contracts have been awarded to seven companies to construct the East Texas-Illinois, 24-inch pipe line and work on the project will start immediately, Bert Hull, general manager, announced July 16. Contracts for construction of the pumping stations will be awarded soon, Hull said.

The line, for contract and construction purposes, was broken into eight segments or sections, ranging in length from 22 to 80 miles. Work on all sections will be carried on simultaneously and all are expected to be completed by December 1. The contracts totaled an estimated $35,000,000 to $40,000,000, and all are on a cost-plus-fixed-fee basis.

Firms receiving contracts and the sections each will build are: Longview to Arkansas-Texas line, Williams Brothers, Tulsa; Arkansas-Texas line to Gurdon, Arkansas, O. E. Dempsey Construction Company, Tulsa; Gurdon to Arkansas River at Little Rock, Anderson Brothers, Tulsa; Arkansas River to St. Francis River at Arkansas - Missouri line, Oklahoma Contracting Company, Dallas; St. Francis River to Mississippi River at Illmo, Missouri, Foreman Company, Kansas City; Illinois River to a point near Harrisburg, Illinois, R. E. Smith Construction, El Dorado, Arkansas; Harrisburg to terminal at Norris City, Illinois, Sheehan Pipe Line Construction Company, Tulsa. Williams Brothers was awarded contract to construct eight crossings over the Red, Little Missouri, Ouachita, Arkansas, Cache, White, St. Francis and Mississippi Rivers.

Texas Panhandle Pipe Being Moved to Arkansas

Crews are at work on removal of the Gulf-Magnolia 10-inch line that has delivered Texas Panhandle crude to the two owners' trunk lines near Ranger since 1926, thus providing equipment that will be used in three recently authorized projects. Williams Brothers Corporation was awarded contact to remove Magnolia Pipe Line Company's 105-mile welded section from Truscott to Ranger, having started work July 10, and will relay 45 miles of the recovered pipe as a loop on the company's trunk line between Ganada and Sealy stations, Southwest Texas. An additional 15-mile section will be shipped to Arkansas for use in the Project Five Pipe Line Corporation's products line between El Dorado and Helena.

Removal of Gulf Refining Company's 141.4-mile 10-inch coupled line between Truscott and Panhandle station and tank farm will be started July 20 by Williams Brothers Corporation, with another crew to be assigned to the salvaging of 19 miles of 8-inch discharge line between Panhandle and Burnett station, leaving 14 miles of the original Panhandle-Spearman line for use by Phillips Petroleum Company, which has operated Gulf's gathering system and absorbed its oil for some years.

Magnolia will continue to operate its gathering system in the Texas Panhandle, having arranged for the sale of its runs, except 3000 bbls daily that will be moved through Humble Pipe Line Company's system to a joint tariff to De Leon, near Ranger.

Gulf Refining Company's recovered 10-inch along with the 15-mile section to be obtained from Magnolia Pipe Line Company will provide ample pipe for the Project Five Pipe Line Corporation to build its approved extension from El Dorado to Helena, involving 155 miles of line after allowing for shrinkage due to cutting of collars and welds, plus anticipated pitted joints.

Project Five Pipe Line Corporation is a private project participated in by Arkansas Fuel Oil Company, Gulf Refining Company, Magnolia Petroleum Company, Premier Oil Refining Company, Root Refining Company and The Texas Company. It will be fed with refined and semi-refined products from plants in the El Dorado, Shreveport, Beaumont and Port Arthur districts. Shipments originating at the latter two points will be made through reversal and conversion of Gulf's 8-inch from Port Arthur to El Dorado and The Texas Pipe Line Company's 8-inch from Port Arthur to Bossier City, near Shreveport, with the latter being connected at Benton to Magnolia Pipe Line Company's 8-inch to Lege station, El Dorado. Williams Brothers Corporation also was given contract to install this system, which is expected to handle 55,000 barrels daily to barge and tank car rack facilities near Helena.

Gulf has 22 80,000-bbl tanks at Pandle that will be available for service at Helena terminal, while Magnolia is dismantling ten 80's at its West Texas tank farm near Midland, and two will go to Helena; 7 to Beaumont and one to Ganada station.

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Selective Service Board Says Oil Work Essential

Men engaged in drilling, rig building, and maintenance service operations, and petroleum refining are employed in essential occupations as defined by the War Manpower Board, and are to be so considered by local Selective Service Boards, under instructions issued by Major General Lewis B. Hershey, Director of Selective Service.

In new orders concerning the reclassification of men on the basis of their dependency or occupational status, Hershey provided that if a man in any occupation held to be an essential activity is found to be a "necessary man" as defined by the regulations, he may be given occupational deferment.

Whiskey Makers Have New Alcohol Rubber Process

Another process for making synthetic rubber from grains entered the rubber debate last week with the announcement from Joseph E. Seagram & Sons, Louisville, Kentucky, whiskey distillers, that the company has developed a butylene glycol process of producing butadiene-type rubber with less equipment than is called for in any other commercial process. H. F. Willkie, vice president in charge of production for the company, declared the new method will produce about 8 pounds of rubber per bushel of grain as compared to an average of 6 pounds per bushel by other methods. Manufacturing cost is estimated at 20 cents per pound of finished rubber, with prospect of further reduction to 15 cents.

Willkie pointed out that whereas other processes first convert grain into grain alcohol and then turn that into butadiene, the new method produces 2:3 butylene glycol which is converted into butadiene. "To build plants capable of making rubber from butylene glycol requires a much shorter time and much less material than for any previously developed process for making rubber from any source," he said.

The new process is a development of original studies made by the Northern Regional Research Laboratory of the United States Department of Agriculture at Peoria, Illinois, and Iowa State College, according to the announcement. Credit in the development was given by Willkie to B. F. Goodrich Rubber Company, Vulcan Copper & Supply Company, and Dr. D. B. Keyes of the University of Illinois.

Oil Imports Continue Most from Venezuela

Imports of oil under the terms of the Venezuelan reciprocal trade agreement totaled 40,776,065 gallons during the four weeks ended June 27, and brought the total for the year to that date to 794,286,761 gallons out of a quota of 2,958,202,800 gallons, it was reported by the Treasury Department.

More than half of the oil received during the four-week period was from Venezuela, which shipped in 22,670,372 gallons to make its total for the year

314,535,429 gallons out of a quota of 2,082,574,771 gallons. The Netherlands shipped in 10,387,377 gallons to make a total of 236,413,483 gallons out of a quota of 630,097,196 gallons, and 7,719,323 gallons were received from Colombia, whose shipments totaled 92,469,506 gallons out of a quota of 94,662,490 gallons.

No concession oil came in from Mexico, which filled its quota of 150,868,343 gallons in May.

Eastern Venezuela Field Being Developed Rapidly

Rapid progress is being made in the development of the Mulata field in eastern Venezuela jointly operated by Standard Oil Company of Venezuela and Pantepec Oil Company. Opened last January by completion of Mulata 2, a producer drilled on the companies' Amana concession lying east of the Santa Barbara field, the Mulata area had 9 completed wells on June 18, of which 7 were producers and 2 were gassers. Two other wells were drilling. Production from the field is closed in pending construction of a pipe line.

East of the Mulata field two wells have been drilled on the concession in an area considered as an extension of Standard Oil Company of Venezuela's Jusepin field. One is a producer and the other is a dry hole.

Almost Sixth of Texas People Depend on Oil

Employment in the Texas petroleum industry totaled 240,223 at the beginning of the current year, figures compiled by the Texas Mid-Continent Oil and Gas Association, show.

Earnings of the 240,223 petroleum workers amounted to $329,538,455 for the year, or almost one third of a billion dollars, the association found. This is only one expenditure of the Texas industry which has been spending around $750,000,000 a year total for wages, lease and royalty payments, taxes and supplies.

The largest number of workers was in the marketing end of the Texas industry last year, the association's study shows. Producing had the largest payroll.

Counting four persons to a family, the Texas petroleum industry last year furnished the living for 960,892 Texans, including men, women and children. This is almost one sixth of the state's population.

Employment and payrolls for the various branches of the Texas petroleum industry in 1941 were reported as follows:

	Employes	Annual Payroll
Producing	39,520	$63,271,520
Refining	30,127	51,066,000
Drilling	27,300	39,980,850
General Office	25,000	42,375,000
Marketing	57,958	46,076,400
Natural Gasoline	2,160	3,254,040
Recycling Plants	380	644,100
Pipe Line	8,287	12,136,945
Natural Gas	8,196	9,261,900
Carbon Black	1,295	1,463,700
Oil Supply and Manufacturing	40,000	60,008,000
Total	240,223	$329,538,455

Kansas Hearing July 24

Corporation Commission of Kansas will hold hearings Friday, July 24, at Wichita to determine oil allowables for August.

Eastern Winter Needs

[Continued from page 14]

a substantial volume will have to be taken from it to offset the declining crude oil production in the Illinois oil fields. More than half the balance will merely replace the oil now being brought by railway tank car all the way from Texas to the East Coast. Since there are no extra tank cars, those tank cars will now pick the oil up in Illinois and bring it East. The distance being shorter, they will be able to carry more oil, but the net gain to the East Coast from that pipe line will be only about 100,000 barrels a day.

"A study is being made of possible methods of increasing this movement by coordination of other existing facilities. In the table this volume has been included in the figure for barges and tank cars in the first quarter of 1943, offsetting the decline which winter causes in such shipments.

"The estimates of available transportation include the Florida pipe line from Port St. Joe to Jacksonville, which will be completed in from four to six months. The proposed Florida barge canal and its additional pipe-line projects would have practically no effect on the situation. The barge canal could not be completed for at least three years; additional pipe-line projects, proposed in the same bill, would either afford little relief or would represent an uneconomic use of critical materials in comparison with an extension of the Texas-Southern Illinois pipe line."

The committee stressed that the tabulations show that supplies are not enough to build up inventories to cover the increase in demand during the winter quarters when a substantial shortage of around 142,000 barrels per day is indicated, even though there is a chance that there may be a small surplus during the remainder of this summer. It would require an average of 100,000 barrels a day deliveries by tanker to offset the shortage indicated against the essential demand during the entire period, it was declared.

Stocks Declining

"The actual situation is considerably worse than these figures show, as the indicated gasoline consumption in District 1 has averaged 540,000 barrels a day since May 15, the date on which the present rationing restrictions were initiated, and June 27, the date of the latest available statistics," the report continued. "This is approximately 140,000 barrels a day higher than the estimate of essential demand for gasoline. The excess is partly due to the failure of the rationing system to function as planned and to include the western section of District 1 in the rationed area. In addition, there has been little or no conversion of home heating installations to coal. The net result has been that stocks of crude oil and petroleum products on the East Coast are now lower than they were on April 1, last, whereas, normally, they should have been rising since that date in order to provide the summer accumulation necessary to meet the peak winter demand of fuel oils for heating."

The committee pointed out that it is not possible to make an accurate estimate of future tanker deliveries in view of the uncertainty surrounding such movements. Some supplies are coming in by tanker now, it was said, and the industry hopes to continue this; new tankers are being built, and submarine sinkings are being reduced, but even so, it was emphasized, tanker shipments cannot be relied upon to any considerable extent, since all tankers may be diverted to war purposes.

"If consumption of gasoline continues at the present high rates in excess of essential demand, and substantial conversion of home-heating installations does not take place, it would require at least 300,000 barrels daily of tanker movements during the summer months to build adequate stocks of fuel oils for heating by next fall," the committee estimated. "Moreover, substantial deliveries by tanker would have to continue during the winter if public health and the continued operation of essential war industries are to be safeguarded."

On the basis of the figures and its study of the situation, the committee submitted the following conclusions:

"(1) Strict gasoline rationing is and will continue to be necessary on the East Coast, despite the industry's success in making large shipments by other than normal methods.

"(2) All known methods of non-tanker transportation appear insufficient to bring supplies adequate for essential demand, leaving a minimum requirement of over 100,000 barrels a day of tanker movement between now and next spring.

"(3) Tanker deliveries of several times this rate will be necessary to build adequate heating oil stocks to meet the winter fuel-oil demand, especially if consumption in District 1 continues to exceed essential demand, as it has under rationing measures to date.

"(4) If these higher tanker deliveries cannot be relied upon, it is imperative that steps be taken to insure that no gasoline or fuel oils be devoted to non-essential use on the East Coast."

Inventory Situation Much Improved During Week

With nearly a million barrels added to residual-fuel-oil stocks, almost an equal amount of light fuels sent to storage, and withdrawal of 1-1/3 million barrels from gasoline inventories, the week ended July 11 was the most encouraging 7-day period of the year so far as balancing of petroleum supplies and demand was concerned.

Apparently the very favorable action of the week was the result of additional adjustment in refinery yields, so smaller quantities of gasoline were manufactured and large percentages of fuel oils obtained. Crude runs to stills were up 31,000 barrels daily from the preceding week in averaging 3,582,000 barrels per day, but gasoline production for the week dropped to 10,675,000 barrels in contrast with 10,959,000 barrels the previous week. The big increase in fuel-oil inventories would indicate that yields of these products were up proportional to the gasoline decline. The success of refiners in achieving even further adjustments of product yields than the sizeable changes already made, is important to the industry in averting a surplus-gasoline situation and a critical shortage of fuels.

Fuel Stocks Gain Sharply

Increase in residual fuel oil stocks for the week was 988,000 barrels, which was in contrast with a 401,000-barrel reduction of the previous week. As a result stocks of this commodity on July 11 totaled 77,891,000 barrels, which was still 13,023,000 barrels, or 14.3 percent, below the level a year ago. However, this constituted substantial improvement, for a week earlier, on July 4, heavy fuel inventories were 14,032,000 barrels, or 15.4 percent, under last year.

At their new level, residual fuel inventories made up much of the ground they have lost since May 30 when they totaled 79,628,000 barrels, and thus gave hope that continued adjustment of refinery outputs would provide enough fuel supply to meet increasing demands of the forthcoming winter.

The addition to light-fuel oil, or gas-oil and distillate-fuel, stocks amounted to 898,000 barrels, which combined with the increases of the four previous consecutive weeks, raised these inventories to 34,418,000 barrels. While this was still 5,431,000 barrels, or 13.6 percent, under a year ago, they were on a par with the stocks of February 28, this year, and compared with a seasonal low of 29,240,000 barrels on March 28.

Especially encouraging was that the increases of the past week in both fuel stocks took place primarily in the East Coast-Gulf Coast area, and that California also reported gains, whereas previously reductions in these regions had been particularly severe. Stocks of residual fuel in the combiend East Coast-Texas-Louisiana-Arkansas area rose 555,000 barrels to 17,073,000 barrels. At the start of May heavy-fuel inventories in this territory were but 15,694,000 barrels. Light-fuel stocks in this district jumped 518,000 barrels and now total 16,052,000 barrels, in contrast with 13,689,000 barrels the end of April.

California stocks of residual fuel rose 340,000 barrels to 54,818,000 barrels during the week, and thus was the largest of any of the four weeks since the start of the year that have added to inventories of this product. Light-fuel stocks in California were increased by 95,000 barrels, and currently total 12,018,000 barrels, or back to the levels of last March.

The Indiana-Illinois-Kentucky area also added to fuel stocks, sending 296,000 barrels of light fuel and 165,000 barrels heavy fuel to tanks during the week.

Gasoline Stocks Decrease Further

Withdrawal of 1,356,000 barrels from gasoline stocks during the week sent these inventories tumbling to their lowest level since last November. At the current total of 85,658,000 barrels, gasoline stocks are 2,264,000 barrels, or 2.6 percent, under the level of a year ago, although they were at an all-time peak of 107,229,000 barrels as recently as March 14 in contrast with a 1941 peak of only 99,727,000 barrels.

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels)

STATE OR DISTRICT	[1]OPC Allocation in July	PRODUCTION IN WEEK ENDED July 11	July 18
Arkansas	78,500	74,150	71,000
California	739,500	684,800	700,200
Long Beach	.....	36,200	36,300
Midway-Sunset	.....	57,100	58,700
Kettleman Hills	.....	39,200	44,200
Wilmington	.....	92,300	94,700
Rest of State	.....	460,000	466,300
Colorado	7,700	6,650	6,400
Illinois	304,100	283,150	275,200
Salem	.....	42,650	38,850
Louden	.....	48,300	49,350
Other New Pools	.....	179,050	174,100
Old Pools	.....	13,150	12,900
Indiana	22,000	18,750	19,000
Kansas	283,200	271,150	286,050
Kentucky	14,100	12,700	12,150
Louisiana	319,600	313,500	316,950
North Louisiana	.....	91,400	93,400
South Louisiana	.....	222,100	223,550
Michigan	64,800	67,000	67,800
Mississippi	49,900	84,900	81,400
Missouri	.....	130	130
Montana	23,100	21,300	22,700
Nebraska	4,100	3,750	3,900
New Mexico	80,500	76,650	76,550
New York	15,300	14,050	13,100
Ohio	11,300	10,000	9,550
Oklahoma	433,000	372,000	374,650
Oklahoma City	.....	70,400	70,700
Seminole Area	.....	92,800	92,350
Rest of State	.....	208,800	211,600
Pennsylvania	54,100	53,650	51,600
Tennessee	.....	30	30
Texas	[2]1,214,400	1,204,450	1,233,550
Upper Gulf Coast	.....	251,500	253,300
East Texas Field	.....	290,350	298,000
Rest of Eastern Texas	.....	85,050	87,650
Lower Gulf Coast	.....	85,650	89,450
Southwest Texas	.....	45,650	50,050
South Central Texas	.....	15,750	15,700
West Texas	.....	207,500	212,150
North Texas	.....	142,450	142,600
Panhandle	.....	80,550	84,650
Utah	.....	15	15
West Virginia	17,800	9,250	9,100
Wyoming	96,800	93,250	93,450
Total United States	3,833,800	3,675,275	3,724,475

[1] Production rates recommended for states by Office of Petroleum Coordinator, on basis of Bureau of Mines forecast of the nation's daily average requirements for domestic crude during month. State conservation authorities except Texas Railroad Commission have prescribed allowables calculated to hold actual production within OPC regulations. (Details on state allowables published in The Oil Weekly of July 6, page 43.)

[2] Actual production of crude oil and other petroleum liquids in Texas expected to average 1,209,482 barrels daily, under railroad commission order, taking into consideration shutdowns in most fields of July 4, 5, 11, 12, 18, 19, 25, 26, 29, 30 and 31. East Texas fields will be shut down on these days and also on July 6, 13 and 20.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

ITEM	Crude Oil Prod. Bbls. Day (Add 000)	Crude Oil Prod. Week Ended	Runs to Stills Bbls. Day (Add 000)	Runs to Stills Week Ended	Crude Stocks Bbls. (Add 000)	Crude Stocks Week Ended	Gasoline Stocks Bbls. (Add 000)	Gasoline Stocks Week Ended	Gas Oil & Distillate Stocks Bbls. (Add 000)	Gas Oil & Distillate Stocks Week Ended	Residual Fuel Oil Stocks Bbls. (Add 000)	Residual Fuel Oil Stocks Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	4,337	11-22	[4]4,120	10-18	266,187	3-29	99,727	3-29	[4]54,983	11-15	102,448	1- 4
1942	[4]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]107,229	3-14	49,357	1- 3	95,857	1- 3
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[3]229,127	10-21	71,152	10- 7	20,722	4-15	105,397	4- 8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	80,870	10- 4	28,381	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	244,364	1-10	87,014	7- 4	29,240	4-25	76,903	7- 4
Trends in 1942 (Week Ended):												
Jan. 3	4,038	.....	3,961	.....	244,440	.....	92,987	.....	49,357	.....	95,857	.....
Jan. 31	3,871	.....	3,848	.....	250,740	.....	97,810	.....	40,674	.....	91,189	.....
Feb. 28	4,016	.....	3,675	.....	259,373	.....	105,635	.....	34,547	.....	88,285	.....
Mar. 28	3,820	.....	3,667	.....	263,208	.....	105,624	.....	31,756	.....	83,045	.....
April 25	3,581	.....	3,506	.....	257,073	.....	102,897	.....	29,240	.....	81,107	.....
May 30	3,877	.....	3,522	.....	255,023	.....	95,355	.....	31,384	.....	79,628	.....
June 27	3.719	.....	3,581	.....	253,364	.....	88,396	.....	32,851	.....	77,304	.....
July 4	3,297	.....	3,551	.....	253,280	.....	87,014	.....	33,520	.....	76,903	.....
July 11, 1942	3,657	.....	3,582	.....	.....	.....	85,658	.....	34,418	.....	77,891	.....
July 12, 1941	3,871	.....	4,103	.....	[4]258,070	.....	87,922	.....	39,849	.....	90,914	.....
Change:												
In week	+360	.....	+31	.....	—84	.....	—1,356	.....	+898	.....	+988	.....
In year	—214	.....	—521	.....	—4,790	.....	—2,264	.....	—5,431	.....	—13,023	.....
In year	—5.5%	.....	—12.6%	.....	—1.8%	.....	—2.6%	.....	—13.6%	.....	—14.3%	.....

[1] All time peak. [2] Lowest since April, 1922. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Stocks, July 5, 1941.

ONE SPECK OF DIRT CAN CRASH A PLANE!

AIRMEN LONG AGO LEARNED that tiny bits of dirt—or drops of water—could choke the carburetor and cause disaster. So fuel is filtered. ¶ And now, oil-field operators know a way of protecting exposed equipment, such as gears and wire rope, from water and dirt. Conoco Coglube is the answer... and it helps to outwit wear and weather, speed and shock. Six different grades, ranging from almost-fluid to almost-solid... made to suit your jobs. Continental Oil Company

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IOWA
Charlton
Clarinda
Creston

KANSAS
Arkansas City
Chanute
Eldorado
Great Bend
Herington
Hutchinson
Independence
Lyons
Marion
McPherson
Newton
Oxford
Russell
Wichita
Winfield

LOUISIANA
Crowley
Houma
Lafayette
Lake Charles

MISSOURI
Bethany
Kansas City
Maryville
St. Joseph
St. Louis
Trenton

MONTANA
Billings
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Shelby
Winnett

NEBRASKA
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Gallup
Hobbs

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TEXAS
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Holliday
Houston
Longview
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McAllen
McCamey
Mexia
Midland
Mineral Wells
Nocona
Odessa
Olney
Pampa
San Angelo
San Antonio
Seagraves
Sweetwater
Tyler
Wichita Falls

UTAH
Salt Lake City

WYOMING
Casper
Glenrock
Greybull
Lovell
Lusk
Medicine Bow
Rawlins
Thermopolis
Worland

U. S. Field Operations

Illinois Basin

O'Hara Production In New Jeff Field

Three Wayne County wildcats find oil shows in Aux Vases sand. First O'Hara lime producer completed in new Jeff field, Wayne County. Hamilton County pool opener nears completion. Richland County discovery completed on pump. Discovery well in Jefferson County being completed.

Wayne County: Pure Oil Co.'s Pike 1, C NW NW 13-1s-7e, three miles north of Fairfield, recovered 1920 ft of oil in an hour's drill-stem test of Aux Vases topped at 3065 ft, elevation 411 ft. An earlier drill-stem test of McClosky at 3190 ft recovered 125 ft of oil-cut mud. It is drilling below 3200 ft looking for a second break in the McClosky.

Shell Oil Co.'s Rutger 1, NE NE 17-1n-7e, west of Cisne, coring in Aux Vases after recovering oily mud in drill-stem test of Aux Vases at 3061 ft.

Shell's Montgomery 1, NW SW 14-1s-6e, three miles south of the Johnsonville field, was coring in Aux Vases after recovering oil-cut mud in drill stem at 3055-66 ft.

R. L. Bauman and Kewanee Oil Co.'s Sanford-Beck 1, C NW NW 29-1s-7e, Jeff field, pumped 160 bbls of oil in 24 hrs from Lower O'Hara lime at 3212-19 ft to become the first producer in that formation there. Other production is from McClosky. The field, discovered only a few weeks ago, has more than 27 operations and is one of the state's most active areas. Newest McClosky producer there is Gulf's Blackburn-Thomas 2, SE SE 19-1s-7e, which flowed 429 bbls in 24 hrs from 3249-50 ft.

Hamilton County: Ohio Oil Co.'s Moore 1, NE SE NW 35-6s-5e, discovery well two miles south of Rural Hill field, pumped 79 bbls of oil and 30 bbls of water in 22 hours from Aux Vases at 3296-3301 ft.

Richland County: Gulf and Helmerich & Payne's Stiff 1, SE NE NE 35-5n-10e, pool opening well near Dundas, completed on pump with an initial of 248 bbls in 24 hrs from McClosky at 2999-3011 ft, after 1500 gals of acid.

Kentucky

Union County: Carter Oil Co.'s Spencer 1, SE NW SW NW 25-P-21, wildcat northeast of Morganfield, was drilling at 2647 ft in Ste. Genevieve, with no shows reported. Starting at surface elevation of 380 ft, Spencer 1 topped Glen Dean at 1953 ft, Barlow 2215, and Ste. Genevieve at 2522 ft.

ILLINOIS FIELD COMPLETIONS

Bond County—W. C. McBride, Inc.'s Fallett 1, se sw sw 30-4n-2w, abnd 1320 ft.

Christian County—R. H. Brians' Dorr 1, se se sw 15-13n-1e, abnd 1275 ft.

Clay County—W. C. McBride, Inc.'s Harrison Comm. 1, se se sw 34-4n-7e, Cyp 2600-10 ft, 51 bbls, 2610 ft.

Clinton County—Texas Co.'s Murphy 2, ne sw ne 2-2n-2w, pay 1226-34 ft, 183 bbls, 1236 ft.

Texas Co.'s Grey 2, c ne ne sw 35-3n-2w, pay 1208-24 ft, 35 bbls, 1231 ft.

Gallatin County—Gulf's Moye 1, se sw ne 15-8s-8e, abnd 2547 ft.

Hamilton County—Shell's Summers 2, nw ne ne 18-6s-7e, AV 3013-50 ft, 63 bbls, 3057 ft.

Lawrence County—Edward Geick et al's Gutteridge 2-A, se nw sw nw 29-3n-12w, pay 1953-73 ft, 82 bbls, 1973 ft.

Richland County—Clark & Burgett's Lenear 1, se nw nw se 24-4n-9e, Weiler 2579-94 ft, 24 bbls, 2594 ft.

Wabash County—Kenelpp & Morgan's Kogan 1, se nw se sw 35-2n-12w, abnd 2265 ft.

Wayne County—Pure's Barnard 1, ne sw 17-1s-6e, McC 3209-50 ft, 26 bbls, 3250 ft.

Texas Co.'s Harlan 2, se nw se sw 22-1s-6e, McC 3195-3217 ft, 1664 bbls, 3217 ft.

White County—Longhorn Oil Co.'s Helm 30, sw sw se 22-3s-14w, McC 2855-74 ft, 950 bbls, 2874 ft.

Haynes & Schnacke's Hon 1, se ne ne 9-4s-14w, abnd 2944 ft.

Pure-Carter's Henderson-Martin 2, nw se se nw 18-6s-9e, Pt Crk 2814-43 ft, 8 bbls, 3098 ft.

ILLINOIS WILDCAT COMPLETIONS

Clay County: Failure—Ohio's Mascher 1, nw nw ne 11-5n-7e, abnd 3005 ft.

Clinton County: Failure—T. M. Conroy's Riddle 1, c ne ne sw 22-3n-2w, abnd 1454 ft.

Effingham County: Failure—Duncan, Inc.'s Thoele 1, ne sw 3-8n-7e, abnd 2614 ft.

Franklin County: Failure—Oil Carriers, Inc.'s Franklin 2, cw½ nw nw 22-7s-1e, abnd 2820 ft.

Hamilton County: Failure—Smokey Oil Co.'s York 1, ne se nw 36-4s-7e, abnd 3522 ft.

Hamilton County: New Field—Cameron Bros.' Anderson 1, se se 1-6s-6e, Ben 2885-2905 ft, AV 3005-3025 ft, 58 bbls, 3036 ft.

Perry County: Failure—J. N. Harsh's Bagwell 1, nw sw 28-4s-1w, abnd 1366 ft.

Saline County: Failure—Carl Robinson's Blackburn 1, csw ne 19-7s-7e, abnd 3300 ft.

Wayne County: New Field—Illinois Expl. Co.'s Dickey 1, cne ne 20-1s-6e, McC 3155-67 ft, 33 bbls, td 3201 ft.

Wayne County: New Field—Deep Rock Oil Corp.'s Blackburn 1, cnw ne 30-1s-7e, McC 3238-43 ft, 871 bbls, 3290 ft.

ILLINOIS WILDCAT STARTS

Franklin County—E. S. Adkins' Harrison 1, se se ne 26-5s-1e, lcn.

Gallatin County—Skelly's Egyptian T & T Co. 2, ne sw ne 21-8s-10e, lcn.

Hamilton County—Taylor Drlg. Co.'s Webber 1, c sw se 15-8s-5e, lcn.

Jefferson County—Central Pipe Line Co.'s Hale 1, nw se 33-3s-3e, lcn.

Saline County—Buell & Herndon's Wilson 1, ne se nw 9-8s-5e, lcn.

White County—Carter's Davis 1, nw sw 4-7s-8e, lcn.

INDIANA FIELD COMPLETIONS

Gibson County—Continental's Maier 52, se sw 31-2s-13w, abnd 2518 ft.

OLD WELL DEEPENED

Sullivan County—Ohio's Poe 1, ne ne sw 3-8n-10w, Dolo 2373-86 ft, otd 1477 ft, 77 bbls, 2386 ft.

INDIANA WILDCAT COMPLETIONS

Posey County: Failures—Cherry & Kidd's Bailey 1, ce½ se ne 4-5s-13w, abnd 3039 ft.

Carter's Duckworth 1, csw se 6-6s-13w, abnd 3106 ft.

Gulf's Strack 1, cne ne 30-6s-13w, abnd 3028 ft.

INDIANA WILDCAT STARTS

Gibson County—J. L. Woodruff's Knowles 1, sw nw sw 25-2s-13w, lcn.

Lake County—Walter Elliott, Trs.' Little 1, nw ne nw se 30-32n-9w, lcn.

Richard J. Viollette's Shelhart 1, sw se sw 34-32n-8w, lcn.

Posey County—Longhorn Oil Co.'s Greathouse 1, 11-7s-15w, lcn.

Spencer County—W. E. Gary, Jr.'s Locker 1, cse nw 34-7s-7w, lcn.

Vanderburg County—Truman W. Drake's Graff 1, c sw se 4-7s-11w, lcn.

Truman W. Drake Co.'s Kleinknecht 1, c se sw 4-7s-11w, lcn.

KENTUCKY FIELD COMPLETION

Daviess County—J. C. Miller et al's Byke 1, 7-O-32, abnd 860 ft.

Results on Industry's Prospecting Fronts

Only 56 wildcat wells were reported completed last week but that number included 10 oil wells, bringing to 221 the total of such strikes this year.

Oklahoma: One new pool.

New Mexico: Two-mile Rattlesnake outpost is big gasser with a mystery.

West Texas: Shell breaks four records with Ward County well.

North Louisiana: Third Lake St. John well is improvement.

Southwest Texas: Group of fields in Jackson County apparently will be connected.

U. S. Drilling Operations in Week Ended July 18, 1942

STATE	ALL WELLS COMPLETED THIS WEEK Total	Oil	Gas	Dry	*Miscel.	†Total 1942	Total this Date 1941	‡WILDCATS COMPLETED THIS WEEK Total	Oil	Gas	Dry	Distillate	Total 1942
Alabama	....	....	....	....	....	3	1	....	....	....	....	....	3
Arkansas	3	2	....	1	....	74	88	....	....	....	....	....	7
California	10	7	....	3	....	403	610	3	....	....	3	....	28
Colorado	2	1	1	....	....	7	9	....	....	....	....	....	....
Georgia	....	....	....	....	....	2	1	....	....	....	....	....	2
Illinois	25	13	....	12	....	1,042	1,930	10	3	....	7	....	232
Indiana	5	....	....	4	1	213	288	3	....	....	3	....	45
Iowa	....	....	....	....	....	....	2	....	....	....	....	....	....
Kansas	25	12	1	11	1	874	1,189	9	2	....	7	....	208
Kentucky	1	....	....	1	....	79	162	....	....	....	....	....	17
Louisiana	15	8	....	7	....	574	768	3	2	....	1	....	88
Michigan	10	6	....	4	....	379	439	....	....	....	....	....	90
Mississippi	....	....	....	....	....	67	96	....	....	....	....	....	17
Missouri	....	....	....	....	....	16	36	....	....	....	....	....	....
Montana	13	11	....	2	....	100	109	....	....	....	....	....	....
Nebraska	....	....	....	....	....	26	44	....	....	....	....	....	12
New Mexico	7	5	....	2	....	222	193	....	....	....	....	....	15
New York	29	18	....	....	11	651	471	....	....	....	....	....	1
Ohio	22	6	8	8	....	604	899	....	....	....	....	....	....
Oklahoma	37	18	....	14	5	831	1,139	6	1	....	5	....	164
Pennsylvania	44	38	3	1	2	2,107	2,186	....	....	....	....	....	....
Tennessee	....	....	....	....	....	7	11	....	....	....	....	....	....
Texas	85	47	5	30	3	3,413	5,429	22	2	....	20	....	641
Virginia	....	....	....	....	....	1	....	....	....	....	....	....	....
West Virginia	22	2	18	1	1	395	363	....	....	....	....	....	....
Wyoming	4	4	....	....	....	46	64	....	....	....	....	....	3
Total this week	359	198	36	101	24	12,136	16,5'8	56	10	....	46	....	1,623
Total last week	336	167	39	116	14	11,777	15,769	81	8	5	68	....	1,567
† Total this year.	12,136	6,450	978	3,101	1,607	.....	.....	1,623	221	27	1,370	5	.....

* Includes old wells deepened, water intake, gas input, salt water disposal, and distillate wells.
‡ OPC program calls for 4,000 wildcats in 1942, of which 624 should produce oil and 116 gas, leaving 3,260 dry.
† Revised.

Oklahoma

New Pottawatomie Pool Produces From Viola

Viola lime pool opened in Pottawatomie County. Hotulke edge test showing for small producer. Deep test dry in Kingfisher County.

Pottawatomie County: Mid-Continent Petroleum Corp. opened a new Viola lime field at Lovelace 1, NWc SE 12-8-4e, in the Hotulke-Maud sector. While there is Viola production elsewhere in the Hotulke area there is none in the vicinity of the new strike which is 5 mi south of field production, near Maud. Originally, the well was carried through the Wilcox to 4453 ft where it was dry. Plugged back to 4385 ft in lime the hole filled 1200 ft and swabbed 5 bbls hourly.

Caddo County: Apache field has been further defined by The Texas Co.'s Starr 1, NE SE NW 34-6n-12w, ¾ mi northwest of production, with water at 4165 ft. This trend failure limits the field to expansion west, as the south and east sides have already been marked.

OKLAHOMA FIELD COMPLETIONS

Creek County: Hickory Grove—Mid-Continent's Bear 4, se nw se 3-14n-7e, Barti 3089 ft, 22.0 MCFG, oil 24 bbls, 3137 ft.

Creek County: Deep Rock—Tibbins' Abraham 1, 150 ft n of nw ne 19-14n-9e, Barti 2805 ft, perf in Layton 1250-61 ft, swab 45 bbls oil, 210 bbls water, pb 1348 ft, td 2862 ft.

Creek County: Glenn—Tide Water's Corbray 37, se sw sw 15-17n-12e, Glenn 1442 ft, com for input well, 1533 ft.

L. B. Jackson's Vowell 39, sw ne sw sw 16-17n-12e, Glenn 1436-1541 ft, pump 30 bbls, 1573 ft.

L. B. Jackson's Vowell 40, se nw se sw 16-17n-12e, Glenn 1416 ft, shot 408 qts, pump 25 bbls, pb 1564 ft, td 1585 ft.

Gulf's Berryhill 36, sw se ne ne 17-17n-12e, Glenn 1429-1572 ft, pump 14 bbls oil, 12 bbls water, 1575 ft.

Link Oil Co.'s Haggard 10, se ne ne 33-18n-7e, Lanton 1406 ft, pay 1431-56 ft, shot 25 qts, pump 2 bbls oil, 10 bbls water, 1465 ft.

Garfield County: North Lucien—Stanolind & Amerada's Worden 1, c se sw 25-21n-3w, Wilcox 5399 ft, pump 15 bbls oil, 50 bbls water, pb 5442 ft, td 5457½ ft.

Garvin County: Pauls Valley—Pure's Teter 6, c se sw sw 31-4n-1e, sand 4322 ft, abnd 4329 ft.

Pure's Teter 5, se ne se 26-4n-1w, lime 4386-4526 ft, pb 4212 ft, abnd 4526 ft.

Logan County: Lovell—Sinclair Prairie's Kendrick 1, sw nw se 21-18n-4w, set 2-in 1285 ft, salt water disposal well, 1310 ft.

Muskogee County: Bald Hill—Link's Durant 1, c sw nw 20-15n-15e, Miss lime 1651 ft, pb 1300 ft, td 1665 ft.

Oklahoma County: Edwards—Harper & Turner's Harper 6, nw sw ne 17-14n-2w, sand 5820 ft, flow 43 bbls, 5848 ft.

Okmulgee County: Montezuma—Henthorn & Wortsel's Grayson 1A, nw c ne se 21-12n-12e, abnd 2138 ft.

Okmulgee County: Schulter—W. B. Pine's Bates 4, se se ne 30-12n-13e, sand 2613-48 ft, abnd 2648 ft.

Okmulgee County: Brinton—W. B. Pine's Wolf 1A, 200 ft w of cs½ n½ 9-13n-12e, Cromwell 2284 ft, water 2284-2309 ft, abnd 2309 ft.

Okmulgee County: Bald Hill—Haas' Bassett 17, ne nw se nw 15-14n-14e, Moris 1607-18 ft, abnd 1624 ft.

Okmulgee County: Polly Anna—C. D. Klingensmith's Burrows 2A, ne se nw 2-15n-11e, Glen 1760 ft, repressure well, td 1792 ft.

Okmulgee County: S. Beggs—J. Keenan's Fewell 1, sw sw sw 25-15n-11e, Wilcox 2828-34 ft, pb 2852 ft, td 2855 ft.

Osage County: Unnamed—J. R. Sharp's 3, nw nw se 18-22n-13e, Burgess 1754 ft, pump 60 bbls oil, 60 water 40 hrs, 1762 ft.

Osage County: Nelagoney—J. P. Walker's 4A, sw ne sw 13-25n-10e, Oswego 1452 ft, 2000 gals acid, pump 20 bbls oil, 5 water, 1480 ft.

Pontotoc County: East Ada—W. C. McBride's Peters 1, sw ne se 8-4n-7e, abnd 1268 ft.

Pottawatomie County: N. St. Louis—S. K. Viersen's Duncan 1, ne se se 21-8n-4e, Hunton 3946 ft, 3000 gals acid, flow 548 bbls, 3984 ft.

Pottawatomie County: Unnamed—Atlantic et al's Eaton 1, sw sw sw 34-9n-3e, Hunton 4700 ft, pay 4700-4805 ft, perf flow 1050, 1-in. 5139 ft.

Pottawatomie County: E. Tecumseh—Ohio's Meyer 2, nw nw nw 21-9n-4e, Viola 4584 ft, perf, 7000 gals acid, pump 206 bbls, 4742 ft.

Seminole County: Unnamed—Kerlyn's Washington 1, ne sw nw 8-8n-7e, Cromwell 3370 ft, abnd 3486 ft.

Seminole County: East Earlsboro—Winona's Lula 1, sw se ne 7-9n-6e, Wilcox 4307 ft, abnd 4321 ft.

Stephens County: Empire—Skelly's Glass 28, sw nw sw se 33-1s-8w, sand 2243-48 ft, perf, pump 77 bbls, pb 2558 ft, td 2568 ft.

Don Oil Co.'s Trout 4, ne c nw sw 1-2s-8w, sand 1470 ft, pump 7 bbls oil, 20 water, 1486 ft.

OKLAHOMA OLD WELLS DEEPENED

Carter County: Hewitt—Cox & Harmon's Herell 1, se ne se sw 20-4s-2w, otd 2038 ft, sand & sandy shale 2439-62 ft, Viola 2780 ft, abnd 2816 ft.

Creek County: Glenn—Sinclair Prairie's Berryhill 11, se ne ne 16-17n-12e, otd 1554 ft, Glen 1568-88 ft, shot 20 qts, pump 5 bbls, 1592 ft.

OKLAHOMA WILDCAT COMPLETIONS

Creek County: Failure—Great Plains' Abrahams 1, c ne se 30-14n-9e, Osw 2200-20 ft, brn lime 2905 ft, Dutcher 3200 ft, Mayes 3480 ft, abnd 3864 ft.

Kay County: Failure—Creekmore-Rooney's Wentz 1, nw ne nw 8-27n-2e, Miss 3667 ft, abnd 3817 ft.

Pottawatomie County: New Field—Atlantic's Hamil 1, c ne sw 27-8n-3e, Paw 1610 ft, Belle City 2630 ft, Hogs 3045 ft, Calvin 4040 ft, Mayes 4480 ft, Wood 4490 ft, Hunton 4598 ft, Syl 4804 ft, Viola 4905 ft, 2nd Wilcox 4980 ft, Dense 4980 ft, Dolo 4980 ft, sdy dolo 5187 ft, 1st Wx 5193 ft, perf 4640-4795 ft, 2½-in, 4600 ft with packer, 400 lbs pressure on tbg, 500 gals acid, 1800 bbls, 5253 ft.

Pottawatomie County: Failure—Creekmore-Rooney's Tiller 1, c nw nw 32-10n-5e, Hog 2345 ft, Ccb 3545 ft, abnd 4490 ft.

Okmulgee County: Failure—Keenan et al's Fewell 1, sw sw sw 25-15n-11e, Bart 1746 ft, Base Glenn 1835 ft, sand 2033 ft, shot 20 qts, 2826-34 ft, pb 2852 ft, abnd 2854 ft.

Osage County: Failure—Ohio's Osage 1, nw nw se 32-22n-9e, Bart 2242 ft, abnd 2343 ft.

OKLAHOMA WILDCAT STARTS

Jackson County—W. J. Moran's Doughty 1, sw sw sw 18-3n-20w, mchy.

Lincoln County—Stan-Amerada's Crawford 1, ne ne se 35-15n-2e, rig.

Pottawatomie County—Newt Barrett, Inc.'s Bledsoe 1, cs½ sw nw 7-6n-4e, Mayes 3875 ft, Wood 3980 ft, Syl 4200 ft, Viola 4261 ft, dr.

J. F. Smith's Dierker 1, c sw sw 19-9n-2e, lcn.

Stanolind's Ratcliff 1, sw nw ne 10-10n-3e, mchy.

Seminole County—Shell's Patterson 1, sw se se 12-9n-6e, dr.

Burns Oil Co.'s Rogers 1, c nw ne 19-8n-7e, dr.

Tillman County—Tysen & Pierson's 1, sw ne nw 1-4s-17w, lcn.

Kansas

Edwards County Showing In Lansing-Kansas City Lime

Edwards County may have pool. Sedgwick County wildcat running high on Mississippi.

Edwards County: Cities Service Oil Co.'s English 1, NEc 8-25-16w, wildcat, is showing for production in Lansing-Kansas City lime with casing set at 4505 ft. Location of this test is on the west flank of a pronounced subsurface nosing from Central Kansas Uplift into Stafford County.

Phillips County: Helmerich & Payne's Teagarden 1, C NE SE 35-5-18w, a wildcat south of Bow Creek in the Basal sand area failed to show and has abandoned in Arbuckle lime at 3605 ft.

Sedgwick County: Ruse Drilling Co.'s Puetz 1, C SL SE NE 1-28-4w, west and south of Wichita, found Mississippi lime high at 3751 ft; drilled through at 4073 ft.

KANSAS FIELD COMPLETIONS

Barton County: Kraft-Prusa—Shell's Harzman 6, ne nw nw 33-16s-11w, Arb 3337 ft, 1000 gals acid, test 3000 bbls, 3345 ft.

Vickers' Gibler 1, ne sw se 16-17s-11w, Arb 3263 ft, 3000 gals acid, test 3000 bbls, 3275 ft.

Stanolind's Soeken 4, ne ne nw 22-17s-11w, Arb 3268 ft, 500 gals acid, test 3000 bbls, 3273 ft.

Barton County: Stickney—Continental's Susank 1, se sw se 19-16s-13w, Arb 3390 ft, 2000 gals acid, pump 497 bbls, 3400 ft.

Barton County: Silica—Lario's Muller A1, cn½ se ne 35-20s-11w, Arb 3050 ft, 3000 gals acid, pump 354 bbls, 3335 ft.

Butler County: Eldorado—Cities Service's Wilson 218, se ne nw 8-25s-5e, Kansas City 1988 ft, 2000 gals acid, pump 25 bbls oil and 93 bbls water, 2051 ft.

Cowley County: Frog Hollow—Leader & Zephyr's Walker 1, c nw se 17-32s-5e, Bart 3000 ft, shot 160 qts, pump 369 bbls oil, 51 bbls water, 3022 ft.

Ellis County: Bemis—Cities Service's Callahan B-15, sw sw nw 25-11s-17w, Arb 3531 ft, abnd 3600 ft.

Graham County: Penokee—R. W. Shields' Murphy 1, ne ne sw 12-8s-24w, Arb 4026 ft, abnd 4065 ft.

Greenwood County: Beaumont—K. T. Weideman's Hendrickson 2, sw sw se 25-27s-8e, abnd 825 ft.

Jefferson County: McLouth—Ray Anderson's Dick 2, cne sw 17-9s-20e, sand 1451-53 ft, 1.5 gas, 1453 ft.

Marion County: Lost Springs—Phillips' Sklenar 2, csw sw 23-17s-4e, Miss 2360 ft, shot 20 qts, pump 77 bbls oil, 7 bbls water, 2411 ft.

Phillips County: Ray—Cities Service's Pinkerton 8, sw nw ne 31-5s-20w, Reagan 3609 ft, 1000 gals acid, test 2391 bbls, 3615 ft.

Pratt County: Cunningham—Sinclair Prairie's Greider 6, ce½ sw se 26-27s-11w, Lansing 3438 ft, 6000 gals acid, pump 334 bbls oil, 7 bbls water, 3487 ft.

W. H. Black's Sellon 1, ce½ ne ne 34-27s-11w, Viola 4253 ft, abnd 4280 ft.

KANSAS OLD WELL DEEPENED

Ellis County: Haller—Bloch's Haller 1, se se nw 10-11s-18w, otd 3185 ft, perf 3000 gals acid, pump 268 bbls oil, 3442 ft.

KANSAS WILDCAT COMPLETIONS

Barton County: Failures—Phil-Han et al's Weber 1, c ne sw 7-16s-12w, anhy 838 ft, Topeka 2720 ft, Lansing 3078 ft, Congl 3338 ft, Arb 3352 ft, abnd 3368 ft.

Continental's Miller 1, ne ne ne 21-16s-14w, Lansing 3203 ft, Arb 3467-76 ft, abnd 3476 ft.

Phillips County: Failures—Carter's Shaw 1, c nw nw 23-3s-18w, Anhy 1583 ft, Topeka 3000 ft, Lansing 3225 ft, Sooy 3626 ft, Viola 3642 ft, Simpson shale 3655 ft, Simpson Dolo 3682 ft, Arb 3702 ft, abnd 3738 ft.

Helmerich & Payne's Teagarten 1, c nw se 33-5s-18w, Anhy 1475 ft, Lans 3205 ft, Base KC 3433 ft, Arb 3549 ft, abnd 3605 ft.

Pratt County: New Field—Hannum Drlg. et al's Beck 1, sw sw sw 6-27s-12w, Anhy 785 ft, Hollenberg 1910 ft, Herington 1955 ft, Winfield 2025 ft, Ft Riley 2148 ft, Florence 2205 ft, Wreford 2310 ft, Topeka 3255 ft, Hebner 3555 ft, Lansing 3701 ft, Base KC 4004 ft, Viola 4156 ft, Simpson 4233 ft, Simpson 4240 ft, Simpson Dolo 4242 ft, 3000 gals acid, test 684 bbls, 4250 ft.

Stafford County: New Field—W. P. Faulkner et al's Ward 1, c se sw 21-21s-13w, Anhy 783 ft, Topeka 2940 ft, Lansing 3343 ft, Base KC 3589 ft, Congl 3606 ft, Viola 3620 ft, Simpson 3642 ft, Arb 3692 ft, cored 3700-03 ft, 2400 bbls, gravity 38, 3703 ft.

Stafford County: Failure—J. J. Lynn et al's Wendelburg 1, cs½ nw ne 19-23s-11w, Topeka 2860 ft, Lansing 3318 ft, Viola 3634 ft, Simpson shale 3672 ft, Arb 3736 ft, abnd 3788 ft.

Stanolind's Asher 1, ne nw se 4-24s-13w, Lans 3520 ft, Maquoketa 3830 ft, Viola 3868 ft, Simpson 3896 ft, Arb 3972-4000 ft, abnd 4000 ft.

Trego County: Failure—Darby Pet.'s Findlay 1, se nw nw 23-11s-21w, Cem 156 ft, Anhy 1735 ft, Lans 3584 ft, Arb 3922 ft, Stains 3922-90 ft, abnd.

KANSAS WILDCAT STARTS

Atchison County—Hatcher-Fisk's Warner 1, c nw sw 19-7s-17e, lcn.

Barton County—Champlin's Parsons 1, n½ ne nw 13-17s-13w, lcn.

Falcon Seaboard et al's Sowards 1, cn½ nw sw 1-20s-14w, lcn.

Butler County—National's Wolf 1, sw sw ne 4-27s-3e, dr 300 ft.

Cowley County—Arthur Brewer's Miller 1, se sw sw 13-31s-4e, mim.

Marion County—Rex & Morris' Silhan 1, ne sw nw 21-18s-4e, spud.

Ward McGinnis' Loveless 1, se se sw 12-19s-4e, mchy.

McPherson County—Naden & Gussman's Russell 1, ne ne ne 29-18s-4w, lcn.

Morris County—Frank Bros.' Crockers 1, se nw nw 7-15s-7e, fsg for drill pipe.

Rice County—Westgate-Greenland's Larson 1, se se se 16-16s-6w, lcn.

Westgate-Greenland's Appel 1, ne ne nw 3-19s-6w, dr.

Reno County—Texas' Wipf 1, c w½ sw sw 6-22s-9w, lcn.

Rocky Mountain Area

Deep Rattlesnake Gasser Reports Unusual Qualities

Location is made for deep test of vast Douglas Creek structure, northwestern Colorado. Deep test Rattlesnake structure, northwestern New Mexico, developes flow of gas containing chemical constituents vital in war effort.

Douglas Creek: Superior Oil Co., unit operator with Union and Conti-

nental, is moving in for Unit 1, NW NW SW 5-3s-101w, Douglas Creek, Rio Blanco County, Colorado; to drill to 7000 ft or through Pennsylvanian.

Rattlesnake Test: Continental's Tribal 1, NE NE SW 13-29n-19w, two miles south of nearest shallow production in the Rattlesnake field, New Mexico, developed a large flow of gas at 6950 ft, and has set 7-in. Gas is reported to contain a high percentage of a chemical extremely valuable to the war effort. Samples of the gas have been sent to the Bureau of Mines for analysis, and because of military reasons federal authorities and company officials are not releasing any information as to the nature of the gas. It is reported, however, to contain a constituent used in the manufacture of explosives and in a quantity far in excess so far of any developed from oil or gas well drilling. The well is the fourth deep test drilled in the Rattlesnake area. Two of the deep tests produced oil, and one was a failure. Company has been carrying out intensive geophysical exploration in the area to locate production in deep sands, and acquired 3720 acres of Navajo Indian leases to the south of the field on which present well is drilling. Surveys show a lenticular formation of the objective Pennsylvanian lime.

COLORADO COMPLETIONS

Moffat County: East Hiawatha—Mountain Fuel's Wilson 10, nw se nw 23-12n-100w, 50 bbls pumping, 2314 ft.

Powder Wash—Mountain Fuel's Allen 2, se ne nw 32-12n-97w, 11.6 gas, 4006 ft.

MONTANA COMPLETIONS

Glacier County: Cut Bank—A. B. Cobb's Tribal 1-211, se se sw 19-32n-5w, swab 105 bbls, Lower Cut Bank 2911-32 ft, td 2943 ft.

Consolidated Gas Co.'s Tribal 2, se se sw 10-34n-6w, pump 14 bbls, 2940 ft.

Glacier Production's Van Ormer 8, c ne se 8-33n-5w, pump 6 bbls, 2861 ft.

Par Oil Co.'s Tribal 2-204, ne nw se 13-32n-6w, pump 25 bbls, 2994 ft.

Santa Rita's Govt 3, c ne se 29-33n-5w, swab 75 bbls, Lower Cut Bank 2960-80 ft, td 2986 ft.

Santa Rita's Halvorson 2, c nw ne 25-34n-6w, swab 48 bbls, Lower Cut Bank 2881-2910 ft, td 2910 ft.

Santa Rita's Jordan 5, c ne ne 18-32n-5w, pump 55 bbls, 2920 ft.

Santa Rita's State 1, c se se 12-33n-6w, swab 300 bbls, 3103 ft.

Toole County: Kevin-Sunburst—A. E. Crumley's Fryberger 23, c n 1 nw sw 24-35n-3w, pump 25 bbls, 1605 ft.

Crumley's Fryberger 24, sw ne sw 24-35n-3w, pump 18 bbls, 1627 ft.

Enfield Oil Co.'s Zachor 7, sw ne nw 20-35n-1w, pump 22 bbls, 1584 ft.

E. A. McDougall's Eagle Creek 1, c ne se 24-32n-3e, Madison Lime 2192 ft, abnd 2250 ft.

R. G. Parrent's Davis 1, c se se 3-36n-3w, abnd 2095 ft.

WYOMING COMPLETIONS

Big Horn County: Byron—Ohio's Cozzens, se sw se 23-56n-97w, pump 425 bbls, 5316 ft.

Fremont County: Circle Ridge—Continental's Shoshone 2-767, se nw sw 6-6n-2w, flow 96 bbls, 665 ft.

Park County: Frannie—Continental's Northern Pacific 3 Lease 2, ne ne sw 23-58n-98w, swab 350 bbls, Embar 3497 ft, td 3555 ft.

Oregon Basin—Ohio's Custer 3, sw sw sw 5-51n-100w, perf Embar 3425-3535 ft, flow 350 bbls, td 3572 ft.

NEW MEXICO FIELD COMPLETIONS

Eddy County—Grayburg Oil Co.'s Burch 5-B, c ne sw 23-17s-29e, flow 125 bbls 5/64-in, acid 3000 gals 2700-40 ft, td 2883 ft.

Kersey & Co.'s Creek 2, nw se nw 23-18s-30e, jkd 510 ft.

Nash-Windfohr-Brown's Jackson 4-B, c nw nw 1-17s-30e, flow 68 bbls, 2-in, shot 220 qts 2960-3025 ft and 180 qts 2808-2900 ft, td 3450 ft, pb to 3025 ft.

R. A. Nipper et al's Yates 1, c se sw 8-20s-29e, abnd 1250 ft.

Plains Prod. Co.'s Jones 2, c sw ne 24-19s-31e, pump 268 bbls, acid 1000 gals 2467-80 ft, td 2654 ft.

Sanders Bros. et al's Etz 2-E, c se ne 34-16s-30e, flow 100 bbls 2-in natural, 2939-3002 ft.

Lea County: Maljamar—Maljamar O&G Corp.'s Baish 16-A, c ne se 21-17s-32e, flow 408 bbls ¾-in, shot 100 qts 3770-3820 ft, td 4131 ft.

NEW MEXICO WILDCAT STARTS

Eddy County—Leila C. Fulton et al's Page 1, c sw ne 15-21s-28e, mim. Martin Yates and Ralph Nix's Matthews 1, c ne se 21-21s-28e, mim.

West Texas

Ward County Well Establishes Four Records

Spectacular Ellenburger discovery in northeastern Ward County purposely deepened to establish water table, and offset starting up. Ordovician prospect assigned eastern Winkler County. Phillips Petroleum Co. authorized 20 additional tests on as many quarter-section leases in Embar-West Andrews district, making total of 32 for this company since completion of Ellenburger well in Embar sector in May.

Ward County: Shell's Sealy-Smith 1, initial test on geophysical prospect that showed for a commercial well May 6 from Ellenburger dolomite at 10,082-10,111 ft, has established four state-wide records for Ordovician production in drilling to salty-sulphur water at 10,580 ft, and has been plugged back to 10,530 ft for completion. It is the deepest producer for Ordovician, largest oil and gas well, involves the thickest pay zone and has the highest pressures. When tested at 10,111 ft it flowed 120 bbls natural, then responded to treatment with 6000 gals acid with flow of 80 bbls hourly. Deepening operations resulted in progressive increases to establish more than 460 ft of pay zone. It is credited with flowing 460 bbls oil hourly average on 8-hr gauge through casing with 3-in drill pipe in hole at 10,264 ft, and at a lower depth it produced 1000 bbls in 70 minutes, while last extended gauge credited well with averaging 764 bbls 45-gr oil hourly, gas volume rated 36,000,000 ft daily through 7⅝-in, cemented at 10,077 ft, with drill pipe in hole. Well showed 1640 pounds working pressure during latter test, and closed in pressure of 2780 pounds. Discovery is in east portion of 19,725-acre lease selected after taking geophysical option January, 1940, on 52,960 acres in Ward and Winkler counties. Stanolind later purchased all available acreage, obtaining U-shaped lease around discovery block, while Gulf holds lease on all prospective acreage to south.

The Ward County discovery passed up promising production from 220-ft zone of Clear Fork (Tubb) lime, topped near 5600-ft level, elevation 2736 ft, and is reported to have had encouragement for production between Permian and Ellenburger. This strike is 18 miles north by west of Gulf's Wristen 5, Silurian discovery that showed oil in Ellenburger 9002-9187 ft, elevation, but lost drill pipe without decisive test of lower zone. Exploration of the interval between Wristen and Sealy-Smith wells is a certainty. In meantime Shell is moving heavy rig to Sealy-Smith 2, SE SW NE 38, Blk A, northwest of its discovery, and more tests are to follow, including one by Stanolind.

Winkler County: Shell has issued 8500-ft contract for Blue 1, SE NW NW T&P 15, Blk 46, T-1-S, to try for Ordovician production on its seismograph high, centering upon Winkler-Ector County line. Other nearby lease owners are contributing cash towards the test.

Ordovician Wells: Gulf's Waddell et al 41, east extension for south end of Sand Hills field, scored field record for potential in earning initial of 14,937 bbls 39.1-gr oil, gas-oil ratio 4178/1, based on 6-hr open flow after using 5000 gals acid 5645-55 ft in Ellenburger, topped 5551 ft. Magnolia's Glenn 1, Crane County wildcat on a strike between Sand Hills and Abell fields, drilling lime 4990 ft, checking flat on Lower Permian markers with isolated Simpson producer 2¾ miles north by west. In Andrews County, Humble's Sims 1 drilling hard lime, possibly Devonian, 9250 ft, and Atlantic et al's University-Texu 1-A drilling cherty-lime 8015 ft. Phillips Petroleum Co.'s University-Andrews 3 and 4, deepest of projected Ordovician tests in Embar area, drilling 7380 ft and 7070 ft, respectively. Latter has broadened its drilling program on University-Andrews quarter-section leases to include offsets to producing and drilling tests, instead of confining development to short-term leases, in authorizing 20 more, all near junction of blocks 10 and 11.

WEST TEXAS FIELD COMPLETIONS

Andrews County: West Andrews—Phillips' University-Andrews 5, c se nw sec 36, blk 11, pump 8 bbls oil, shot 400 qts 4214-4315 ft, td 4326 ft. Phillips' University-Andrews 7, c nw nw sec 24, blk 11, pump 20 bbls, acid 2000 gals and shot 360 qts 4330-4410 ft.

Cochran County: Slaughter—Continental's Dean 4, 2009 ft from e and 651 ft from s lse, leag 58, Martin CSL, flow 839 bbls 2-in, acid 12,000 gals 4945-5008 ft.

Crane County: Sand Hills Ellenburger—Gulf's Waddell et al 41, c n¼ of w¼ H&TC 17, blk 3, Ellenburger 5515 ft, 14,937 bbls 39.1-gr, gas/oil ratio 4178/1, open, acid 5000 gals Ellenburger 5645-55 ft.

Crockett County: Soma-Noelke—A. J. Rife et al's Cohen 3, 990 ft from s and 413 ft from w lines sec 27, M. T. Willon sur, flow 713 bbls natural 1-in, sand 1157-83 ft, td 1186 ft.

Crockett County: World-Powell—M. & M. Production Co.'s Powell 3-C, 1183 ft from e and 1381 ft from n E.L. Ry sec 62, blk BB, pump 181 bbls, acid 2600 gals 2615-42 ft.

Pecos County: Abell—Stanolind-Anderson-Prichard's Sharp-State 1, c lot 12, H&GN 22, blk 9, top McKee 5479 ft, abnd 6000 ft.

Pecos County: Lehn—Burk Royalty Co.'s O'Neal 2, 467 ft from sw and se lines H&GN 74, blk 10, pump 29 bbls, natural, 1621-48 ft, td 1765 ft, pb to 1648 ft.

Pecos County: Walker—Cardinal Oil Co.'s University 3-B, 330 ft from e and 3105 ft from n lines sec 24, blk 16, flow 114 bbls 1-in, shot 90 qts 2077-96 ft.

Terry County: Slaughter—DeKalb Agricultural Assn's Alexander 6, 1874 ft from e and 3194 ft from n lines s½ PSL 7, blk X, abnd 5063 ft.

Upton County: Gulf-McElroy—Gulf's Crier-McElroy 56, 387 ft from s and 1707 ft from e sec 196, blk F, flow 577 bbls 2-in, shot 653 qts 2760-2903 ft, td 2913 ft.

Ward County—Gulf's Hutchings 172, sw se nw sec 10, blk O, flow 688 bbls 2-in, shot 210 qts 2469-2516 ft, td 2520 ft.

Winkler County: Keystone—Gulf's Keystone 45, c se nw PSL 11, blk B-3, flow 187 bbls 2-in, shot 440 qts 3278-3470 ft, td 3600 ft, pb to 3480 ft.

Winkler County: Weiner—Texas Co.'s Halley 2, 555 ft out nec w½ PSL 7, blk B-11, flow 530 bbls 2-in, shot 260 qts 3025-3155 ft.

Yoakum County: Wasson—American Liberty & Atlantic's Knight-Texaco 9, c ne ne sec 773, flow 448 bbls, plus 3.8 percent bs&w, 2-in, acid 10,000 gals, td 5283 ft.

Humble's Herd 3, c sw se sec 795, pump 74 bbls, acid 10,000 gals 5035-5120 ft.

WEST TEXAS WILDCAT COMPLETIONS

Nolan County: Junked—Tex Harvey Oil Co.'s Tipton 1, c s½ nw sw T&P 43, blk 19, elev 1979 ft, jkd 1340 ft, skid 50 ft east.

Runnels County: Failure—Geo. Callihan-E. M. Wahlenmaier & Currie's Rainwater 1, 660 ft s and 739 ft w of nec 250-ac tr, J. H. San Miguel sur 72, elev 1960 ft, Palo Pinto 3265 ft, Ellenburger 4515 ft, abnd 4670 ft.

Ward County: New Pool—Fred Hyer and J. E. FitzPatrick's Pruitt 1, 467 ft out s cor W&NW 23, blk 1, elev 2694 ft, Delaware lime 4814 ft, sand 4825 ft, flow 15 bbls 32-gr oil, plus 10 bbls water 2-in, 7 hrs, then only gas, shot 100 qts 4838-69 ft.

WEST TEXAS WILDCAT STARTS

Andrews County—Mid-Continent Pet. Corp.'s University-South 1, c nw nw sec 16, blk 10, mim.

Crockett County—Grapeland Oil Co.'s Couch-Humble 1, c nw nw HE&WT 33, blk GG, lcn. John I. Moore et al's Couch-Humble 1, c nw ne HE&WT 33, blk GG, lcn.

Lubbock County—John R. Sharp et al's Elliott-Stanolind 1, c ne ne EL 33, blk D-5, lcn 6400-ft test.

North Texas

Archer County Wildcat Has Second Prospective Zone

Archer County wildcat has second prospective oil zone. Two deep wildcats in Montague County prove dry in Bend. None of discoveries in district this year have been expanded sufficiently to support a drilling program.

Archer County: Geo. Cooper et al's Knight 1, between K-M-A and Hull-Silk fields, preparing to test oil saturation at 4886-4902 and 4909-18 ft, with Ellenburger dry at 5015-10 ft. Small well passed up temporarily in Strawn.

Montague County: Jerry Hawkins et al's Lowrie 1, 2¼ miles east by north of Hults-Owens field, dry in Bend, topped at 6185 ft, drilling at 6610 ft in Barnett shale, topped at 6510 ft. Continental's Hildreth 1, 11¾ miles northeast of Gant-Turner pool, drilling 6390 ft, having passed up nominal oil show in Bend topped 6005 ft, 4 ft high.

Throckmorton County: British-American's McCluskey 1-A, 4 miles northwest Throckmorton, preparing to test possible production at 4615-39 ft in Bend, topped 4556 ft, after developing water from Mississippian section 5124-41 ft, 5½-in 5127 ft, total depth 5205 ft.

Young County: Shell's Bullock 1, recent discovery 7¾ miles northwest New Castle, flowed 205 bbls oil and 11 bbls water in 4¼ hrs on latest gauge from Mississippian at 4748-4820 ft, having plugged back from heavy water flow in Ellenburger at 4972-5001 ft to 4830 ft. Water in oil pay about exhausted, and big well due after acidizing. Rig skidded to drill Bullock 1-D, southeast offset.

Clay County: Consolidated's Scaling 1, 1⅛ miles southeast Joy pool, abandoned 6210 ft above Mississippian objective, as 229 ft low on Barnett shale, topped 6107 ft. Shell's Clark 2, northeast outpost, preparing to test at 5863 ft in Mississippian, topped 5848 ft, 104 ft high to south offset, indicating trend of production, and company starting Brock 1 as north offset. In Spring pool, Texas Co.'s Stine 1, southeast outpost, rated 400 bbls daily natural and will acidize saturation 5556-66 and 5602-05 ft in Bend, topped 5557 ft, 3 ft low to discovery. Continental's Spring 3, north outpost, abandoned 6203 ft, having topped Bend 5606 ft, 47 ft low.

NORTH TEXAS FIELD COMPLETIONS

Archer County—W. C. Young & Burk Roy. Co.'s Harmel 1, 330 ft out nec TE&L 2491, abnd 1465 ft.

Van Wormer & Phillips' Falls 2-A, blk 63, Falls CSL, pump 5 bbls 1167-75 ft.

Cooke County—Whitfield & Grimes' Voth 1, 330 ft from se and ne lines of M. Matson sur A-320, abnd 1776 ft.

Jack County: Hoefle — Hanlon - Buchanan-Standard of Texas' Griffin 1, 495 ft out nwc sw SP sur A-579, 1-2/3 mi se prod, Bend 4845 ft, flow 412 bbls 29/64-in, acid 3000 gals, 4845-74 ft.

Montague County: Gant-Turner—Continental's Penn 1, 660 ft out nwc ET 60, Bend 6104 ft, Viola 6692 ft, Simpson 6922 ft, Ellenburger 7370 ft, abnd 7561 ft.

Wilbarger County: Harrold—Big Six Oil Co.'s Morris 1, 330 ft from s and 368 ft from e n-50 of w-94 of sw H&TC 3, blk 14, abnd 3413 ft.

Wilbarger County: Potts—Consolidated Oil Co.'s Potts 5-D, 999 ft from n and 660 ft from w H&TC 4, blk 7, KMA lime 3899 ft, Bend 4117 ft, Mississippi 4510 ft, Ellenburger 4529 ft, pump 80 bbls oil, 262 bbls water, acid 1000 gals, Mississippi perf 4506-30 ft, td 4544 ft.

Young County—Hanlon-Buchanan-Standard of Texas' Eppstein 1, 505 ft from ne and w lines 311-ac tr, John Conner sur A-57, flow 226 bbls, 2-in, sand 2583-92 ft.

Margay Oil Corp.'s Brisco 1, 1320 ft from s and 330 ft from w lines P. Tackett sur A-1255, 12,000,000 gas, acid 1000 gals, perf 3345-51 ft, td 3388 ft.

E. L. Orr et al's Prideaux 2, lot 5, A. Rohus sur A-240, pump 5 bbls, shot 10 qts 650-60 ft and 10 qts 695-710 ft, td 711 ft.

NORTH TEXAS GAS INPUT WELLS

Archer County—Fain-McGaha Oil Corp.'s Ferguson 26-C, SP 1, A-416, sand 684-85 ft, td 699 ft.

Fain-McGaha's Ferguson 27-C, SP 1, 641-53 ft, td 654 ft.

NORTH TEXAS WILDCAT COMPLETIONS

Archer County: Failure—Fortex Oil Corp.'s Threet 1, 990 ft out sec M. Pickens sur A-341, abnd 1319 ft.

Clay County: Failure—Morrison & Dawson's Fuhrman 1, 330 ft out nec of s-200 of w-320 ac tr, MEP&P sur A-346, abnd 2000 ft.

Throckmorton County: New Pool — A. V. Jones-H. R. Stasney-Groover & Rose's Brock 2, 660 ft out swc blk 94, Comanche Indian Reserve, Bend 4296 ft, Marble Falls 4703 ft, flow 10 bbls oil and 75 bbls water, 2-in, acid 7000 gals, 4707-61 ft.

Throckmorton County: Failure—J. W. Robinson et al's Benton 1, 150 ft from e and 900 ft from s lines n-172 ac, TE&L 967, abnd 404 ft.

Wichita County: Failure—American Liberty Oil Co.'s Tuttle 1, 660 ft out swc blk 174, Waggoner Colony subdiv, top Bend 4469 ft, abnd 5026 ft.

Joe Baldwin et al's Robinson 1, 990 ft from w and 1650 ft from s Jas. Walker sur A-328, abnd 1410 ft.

Wilbarger County: Failure—Danciger O&R, Inc.'s Gardner 1, c sw ne H&TC 53, blk 14, abnd 3310 ft.

NORTH TEXAS WILDCAT STARTS

Montague County—Faye Ware et al's Hoffman 1, 330 ft out swc n 40 of w½ G. W. Tilley sur A-734, lcn 3800-ft test.

Wilbarger County—E. D. Miller et al's J. L. McCrary 1, c nw se H&TC 64, blk 14, lcn.

WEST CENTRAL TEXAS FIELD COMPLETIONS

Coleman County—States Oil Corp.'s Hudson 3-B, T&NO 22, blk 2, flow 52 bbls, 1/16-in, shot 40 qts 3563-3590 ft, td 3598 ft.

Shackelford County — Roeser - Pendleton & Continental's Cook 14-A-117, ET 117, pump 144 bbls, sand 1698-1710 ft, td 1712 ft.

WEST CENTRAL TEXAS WILDCAT COMPLETIONS

Coleman County: Failure—Anzac Oil Corp.'s Hinds 1, 4970 ft from n and 467 ft from e Miquet Baniles sur 670, elev 1693 ft, abnd 2733 ft.

Jones County: Failure—Merry Bros. & Perini's Dodge 1, T&P 5, blk 16, elev 1683 ft, abnd 2407 ft.

M. J. Delaney et al's Hastings 1, c nw ne BBB&C 191, abnd 3268 ft.

Taylor County: Failure—Butler-Horne Drl. Co.'s Hudson 1, 330 ft out nec 132.4-ac tr, lot 3, J. A. Nabors sur 9, elev 1758 ft, 6 shows oil between 2408-2515 ft, abnd hfw 2900 ft.

WEST CENTRAL TEXAS WILDCAT STARTS

Brown County—Central Texas Gas Co.'s Clements 1, 800 ft from nw and 400 ft from sw lines of M. G. Anderson sur 2, sp.

Comanche County — O. L. Johnson et al's Hutchinson 1, 660 ft out nec T. Hutchinson sur A-2087, sp.

Jones County—Merry Bros. & Perini's J. W. Grogan 1, 1650 ft from s and 330 ft from e lines tr, M. R. Longoria sur 258, sp.

Butler-Horne Drl. Co.'s B. A. Stephenson 1, 330 ft out nec s½ lot 4, J. Winters sur 138, mim.

Palo Pinto County—E. C. Holt et al's White 1, 660 ft from e and 4040 ft from n lines Rees A. Porter sur 194, A-352, lcn.

TEXAS PANHANDLE FIELD COMPLETIONS

Carson County—Skelly's Schafer 148, I&GN 190, blk 3, pump 396 bbls, shot 283 qts 3230-82 ft, td 3288 ft.

Gray County—Cree & Hoover's Griffith-Davidson 2, H&GN 65, blk B-2, pump 276 bbls natural, 2915-98 ft.

Texas Co.'s G. H. Saunders 39, pump 59 bbls, shot 190 qts 2697-2760 ft, td 2975 ft.

Hutchinson County—Holmes et al's Moore 8-A, I&GN 125, blk 4, pump 349 bbls, shot 240 qts 3025-81 ft, td 3096 ft.

J. M. Huber Corp.'s Bryan 6, T.C. Ry 2, blk M-24, pump 230 bbls, natural, 3218-22 ft, td 3255 ft.

Phillips' Houck 2, TC 25, blk M-23, pump 97 bbls oil and 37 bbls water, shot 420 qts 3180-3278 ft, td 3280 ft.

Phillips' Whittenburg 70, sec 19, blk V, B. F. Jamison sur, pump 139 bbls oil and 36 bbls water, shot 340 qts 2800-2900 ft.

Moore County—Canadian River Gas Co.'s Masterson 7-A, D&P 11, blk B-12, 30,000,000 gas, 355 lbs pressure, acid 10,000 gals 2370-2766 ft.

Wheeler County—Smith Bros. Ref. Co.'s Farren 2, ne ne sw H&GN 34, blk 24, 4,160,000 gas, 75 lbs pressure, 2115-2215 ft, td 4488 ft, pb to 2300 ft.

East Texas

Navarro County Wildcat Makes Big Gas Flow

Navarro County wildcat makes big gas flow from Woodbine. Club Lake faulted pool has three wells on production and two testing. New Paluxy pool considerable area with attractive sand body.

Navarro County: John Hoosier et al's Black 1, southwest Bazette area, boosted its gas yield to 37,000,000 ft daily after perforating upper Woodbine at 3234-52 ft. Previously showed for small gasser with spray oil and water from 3272-79 ft.

Wood County: Trio of wells in process of completion in the Black Oak (Coke) pool have net pay zones, varying from 57 to 102 ft, and all place the water table flat with the discovery. Amerada's Faulk 1, ¼-mile east of its discovery, had defective casing seat and has recemented after indicating big flow from 3 stages of perforations opposite 92 ft of net pay between 6230-6340 ft, with water at 6357 ft, elevation 498 ft. It is 22 ft high on top oil pay. Amerada's Darby 1, northwest offset discovery, logged Paluxy oil sand 6281-6383 ft, then water to 6395 ft, elevation 528 ft, cemented pipe on bottom. One-ft high on top pay. General American Oil Co. et al's Rodney 1, ¼-mile west, logged 57 ft net pay in Paluxy section 6318-85 ft followed by water to 6425 ft, elevation 529 ft. Top pay is 35 ft low to discovery, indicating moderate dip in structure to west. Jerry Hawkins et al's Clark 1, northeast outpost, resumed after fishing job at 5118 ft in Georgetown, topped 5110 ft, elevation 547 ft, 29 ft high. Magnolia has entered field with south outpost, and Amerada rigging up for north offset discovery. Development to date confirms early forecast that area is forerunner of major oil field with unusually productive Paluxy sand body.

Cass County: Kildare: Phillips' Benefield & Singleton 1, Wanhop Survey, east side test in new two-well field, made salt water in Lower Gloyd; perf with 90 shots from 5997 to 6012 ft, acidized 1000 gals, swab 70 bbls fluid, 90 percent oil, in 3 hours; still has not kicked off; td 6100 ft.

EAST TEXAS FIELD COMPLETIONS

Houston County: Lovelady—M.G.M. Oil Co.'s Hartt 1, 6042 ft from w and 2779 ft from n lines John Forbes sur, Crockett 832 ft, Sparta 1260 ft, Recklaw 1906 ft, Carrizo 2103 ft, abnd 3309 ft.

Hunt County: Club Lake—Hollandsworth Drl. Co. et al's Baker 2, 330 ft from s and 528 ft from e of I. Handlin sur, 990 ft n discovery, elev 494 ft, Austin 1885-2390 ft, cut fault 2390 ft, top Woodbine 2748 ft, flow 243 bbls natural, ¼-in, Woodbine perforations 2749-66 ft, td 2970 ft.

Wood County: Hawkins—Humble's Green 4-B, 160-ac lse, J. Heard sur, flow 436 bbls, ¼-in, Woodbine perf 4654-60 and 4670-77 ft, td 4772 ft.

Humble's Ponder 2-C, 467 ft out swc 106.24-ac lse, J. Pollock sur, flow 389 bbls ¼-in, perf 4798-4804 and 4853-68 ft, td 4880 ft.

EAST TEXAS WILDCAT COMPLETIONS

Hunt County: Failure — Great State Oil Corp.'s Schenck-Floyd 1, 660 ft from e and 2103 ft from n lines 500-ac lse, (west) Mary Latham sur, blk 2, elev 497 ft, top Pecan 1610 ft, Austin 2200 ft, abnd 3022 ft.

Morris County: Failure—M. H. Marr and Bert Fields' Sheppard 1, 3000 ft from e and 5375 ft from s lines BBB&C 319, elev 291 ft, Pecan 1625-2060 ft, Woodbine 3215 ft, Georgetown 3815 ft, Goodland 4385 ft, Paluxy 4609 ft, abnd 4800 ft.

Trinity County: Failure—Magnolia's Cameron 1, 660 ft out swc blk 90, Henry Bond sur, abnd 7310 ft.

Upshur County: Failure—T. W. Lee et al's

Briggs 1, 660 ft from n and 1415 ft from w lines 215-ac tr, J. B. Davenport sur, Austin 3752 ft, abnd 4130 ft.

EAST TEXAS WILDCAT STARTS

Franklin County—Grady H. Vaughn and J. B. White's W. H. Jackson 1, 1600 ft from s and midway e & w lines 174-ac tr, Jas. F. Hopkins sur A-218, n flank Talco, lcn Smackover test.

Freestone County—Haynes B. Ownby Drl. Co.'s Utley 1, 1466 ft from e and 660 ft from n lines 232-ac lse, J. S. Claypool sur, 1 mi se Stewards Mill, lcn.

Hunt County—T. W. Lee et al's J. E. Johnson 1, 660 ft out nwc 230-ac tr, Amos Smith sur, 2 mi se Club Lake, sd 1891 ft.

Bowie County—P. D. Bowman's Simms 1, 1980 ft from s line and 660 ft from e line of 80-acre tract out of 2000-acre Simms estate lease in H. G. Williams survey, lcn.

Southwest Texas

Group of Jackson County Fields Apparently Joined

Mauritz-Ganado sector of northeastern Jackson County becomes a producing area of consequence as the result of discovery of several producing spots which ultimately may be merged into one multiple-sand field. A series of Marginulina-Frio sands from 5100 to 6600 ft have been proved productive. The indication is that 40 to 50 more wells may be drilled in this region.

Gulfboard Oil Corp. et al's Burdett 1, between Ganado, Mauritz, West Mauritz, Harmon and Mayo fields recovered 1230 ft of oil, 52 lbs pressure in 15 min at 5103-6 ft, and is coring for 5400-ft pay.

W. S. Boyle's Rose & Sample 1, 1½ mi south of Ganado field and on trend with W. Ganado area, Jackson County, flowed 26-gr oil in 20 min from Marginulina at 4987-95 ft.

Luling O. & G. Co.'s Slick 2-W-B, 1003 ft northeast of second sand discovery at South Caesar, Bee County, logged Carrizo at 6592-6626 ft and set 5½-in on bottom. Indicates that deep sand will follow trend northeastward along Caesar strike.

New wildcatting play is being launched on southwesterly trend from Seeligson field, Jim Wells County. Texas Gulf Producing Co. staked two outposts in the vicinity of Premont townsite; Shell to drill 8000-ft test north of Von Blucher field and between it and Seeligson area. The Texas Co. drilling one mile north of LaGloria field and on Seeligson trend. Recent test by Shell in this sector and between LaGloria, Von Blucher and Seeligson fields, showed sufficient saturation to indicate commercial production.

LOWER TEXAS COAST COMPLETIONS

Aransas County: St. Charles—Continental's St. Charles 4, sec 1, 4220 ft sw prod, gas/cond, 5/32-in, 1200 lbs tp, cas sealed, perf 9392-9420 ft, td 9549 ft.

Jackson County: W. Mauritz—J. B. Coffee's Mauritz 1-L, sec 22, n outpost, 125 lbs 28.6-gr, ⅛-in, 750 lbs tp, 850 lbs cp, gas/oil ratio 400/1, perf 5474-82 ft, td 5490 ft.

Jackson County: West Ranch—Magnolia's West 236-A, R. Musquez gr, 115.68 bbls 31.3-gr, 7/64-in, 875 lbs tp, 1025 lbs cp, gas/oil ratio 475/1, perf 5710-50 ft, td 5750 ft.

Jim Wells County: Seeligson — Transwestern's Dunlap 13, SK&K 179, 130 bbls 41-gr, 3/32-in, 1175 lbs tp, 1300 lbs cp, gas/oil ratio 725-1, perf 6062-66 ft, td 6126 ft.

Kleberg County: Stratton—Humble's King-Paso Ancho 14, Luciana Rivas gr, 137.22 bbls 42.2-gr, 1.8-in, 750 lbs tp, 850 lbs cp, gas/oil ratio 803/1, sand 6586 ft, 5½-in 6609 ft, td 6633 ft.

Nueces County: N. Luby — Stanolind's La-Prelle 3, Schallert sub, 2047 ft sw prod, 120.75 bbls 40-gr, ⅛-in, 1950 lbs tp, 2620 lbs cp, gas/oil ratio 3285/1, perf 7307-11 ft, td 8149 ft.

Nueces County: Stratton—Southern Minerals' Stratton 43, sec 198, 75.8 bbls 42-gr, 3/32-in, 750 lbs tp, 1125 lbs cp, gas/oil ratio 890/1, perf 6674-88 ft, td 6690 ft.

Southern Minerals' Stratton 44, sec 203, 84 bbls 42.1-gr, 7/64-in, 900 lbs tp, 1150 lbs cp, gas/oil ratio 865/1, perf 6420-29 ft, td 6625 ft.

San Patricio County: Odem — Seaboard's Smith 1-A, Hart & Sons gr, abnd 7095 ft.

San Patricio County: Rooke — Plymouth's Welder 1-E, sec 43, 2034 ft ne prod, 56.44 bbls 40.5-gr, 5/64-in, 2050 lbs tp, cas sealed, gas/oil ratio 5138/1, perf 7121-25 ft, td 7151 ft.

LOWER TEXAS COAST WILDCAT COMPLETION

Cameron County: Failure—Pure's Newberry 8, Sh 2, Skelton sur, 7½ mi nw Pt. Isabel, abnd 5801 ft.

LOWER TEXAS COAST WILDCAT STARTS

Bee County—Shirley & Sheig's Moore 1, 660 ft s and e lines tr, S. Allen sur, 4300-ft test.

Goliad County—Ginther, Warren & Ginther's C. G. Wood 1, 1320 ft s, 1400 ft se lines D. Morris sur, 9 mi se Goliad, 5500-ft test.

Jackson County—J. L. Collins & Co.'s Planet 1, 660 ft ne and se lines 400-ac tr, P. Green sur, ab 25, 2 mi se Francitas, 10,000-ft test.

Rowan & Hope's J. Wearden 1, 660 ft s and e lines ne se sur 17, 5 mi n Cordele, 4750-ft test.

Jim Wells County — Hickok & Reynolds' Doering 1, 660 ft s and e lines Lot 6, Seefeld Frm Tr sub, sur 205, sw of Magnolia City, 6000-ft test.

Shell's Stewart & Jones 1, J. E. Stephens sur, ab 444, between Seeligson & Von Blucher, 8000-ft test.

Texas Gulf Prod. Co.'s C. T. Hewitt 1-B, 660 ft n and e lines se sec 44, Haldeman sub, 1 mi w Premont, 7000-ft test.

Texas Gulf Prod. Co.'s C. T. Hewitt 1-A, 660 ft n and e lines se sec 50, Haldeman sub, 1 mi nw Premont, 7000-ft test.

Nueces County—E. A. Graham's Adamson 1, 660 ft s and w lines 80-ac lse, sec 6 Pauls sub, 3 mi w Shield, 6500-ft test.

SOUTH CENTRAL TEXAS FIELD COMPLETION

Dimmitt County: Pendencia Creek—Wellington's Sullivan 3-B, sec 603, abnd 1966 ft.

SOUTH CENTRAL TEXAS WILDCAT STARTS

Bexar County—Milton A. Frederich's Frederich 1, 450 ft w, 600 ft s lines 100-ac lse, R. Herrera gr sur 474, 7 mi w San Antonio, 1000-ft test.

Kimble County—Ben Banner's F. Baker 1, 3925 ft n, 300 ft w lines, sec 443, 3½ mi ne Junction, 1800-ft test.

SOUTHWEST TEXAS FIELD COMPLETIONS

Duval County: Kreis—Bridwell's Escapule 6, pump 96.08 bbls 38-gr, 15 percent sw, sand 3224 ft, 7-in 3224 ft, td 3234 ft.

Jim Hogg County: Colorado—Sun's East 2-B, Las Moretas gr, 133.02 bbls 47.4-gr, ¼-in, 80 lbs tp, 525 lbs cp, gas/oil ratio 262/1, sand 2921-26 ft, 5½-in 2912 ft, td 2930 ft.

McMullen County: S. Campana—Argo's Edrington 1-K, sec 63, 2800 ft ne prod, 8,000,000 gas, 720 lbs rp, perf 1864-67 ft, td 4486 ft.

Webb County: Unnamed field — Magnolia's DCRC 2, Lge 4, blk 4, lge 4, ¼ mi w disc, abnd 2012 ft.

Zapata County: Lopeno—Venture Pet. Co.'s L. Ramirez 1, blk 1, por 20, dd fr 2253 ft, est 15,000,000 gas, 994 lbs rp, td 3707 ft.

SOUTHWEST TEXAS WILDCAT COMPLETIONS

Duval County: Failure—M. E. Davis' Halff 1, J. Poitevent sur 11, 5 mi ne Benavides, abnd 6505 ft.

McMullen County: Failure—Felman & Hagen's Campbell 1, sec 114, 27 mi s Tilden, abnd 2805 ft.

SOUTHWEST TEXAS WILDCAT STARTS

Duval County — Republic Nat'l Gas Co.'s Dinn 1, 660 ft n and e lines sw sec 665, 8 mi ne Bruni, 4000-ft test.

Starr County—D. C. Dewitt's Flores 1, 660 ft nw and sw lines 100-ac lse, Por 110, 42 mi nw Rio Grande City, 1700-ft test.

Sun's Frost 1-C, 660 ft w line Y. Trevino por 96 and 8386 ft sw No. 1-B, 8710 ft sw Garcia, 4000-ft test.

Webb County—O. W. Killam's Garcia 2, 660 ft s and w of s ly ne cor sec 69, se por county, 3500-ft test.

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Texas Gulf Coast

Lakeview Area Wildcat To Make Production Test

Pipe set in Lakeview area wildcat of Wharton County, Continental opens gas production on Shepherd's Mott, Matagorda County, while three-quarter-mile extension expected at North Houston in Harris County.

Wharton County: Temple Hargrove has cemented 5½-in in Hartman 1, shallow wildcat in Lakeview area, 6 miles northwest of Pierce. Although detailed information has not been released, operators are reported to have found sands enough to yield either oil or gas. Bottomed at 4036 ft, the well is in the general area where W. R. Davis completed a gas well in 1941. McDannald Oil Co. also drilled a test on the prospect, finding gas shows but failing to definitely establish a gas field. Hargrove's well is in I&GN 10.

Matagorda County: Continental has proved Shepherd's Mott to gas production with completion of Hawkins 3. Perforated at 3840-50 ft, the well flowed an unestimated amount of dry gas, shut-in pressure 1650 pounds on casing. Final potential gauge has not been completed. The hole is bottomed at 5208 ft, and 6-in casing was cemented at 3905 ft. The well was Continental's third wildcat on the prospect, one of the oldest on the coast and one which had around 14 previous dry holes.

Harris County: Union Producing Co. is making second test in Nroh 1, semi-wildcat 4000 ft southeast of production at North Houston. Perforated at 6792-6817 ft in Fairbanks sand, the well failed to make a producer due to mechanical difficulties. Perforations were squeezed and a new test is being made. A drill-stem test of the sand showed 650 pounds pressure. Hole is bottomed at 7602 ft with 5½-in cemented at 6889 ft.

Montgomery County: LaGloria Corp. of Corpus Christi is reported to have bought from Gray and Wolfe of Houston, controlling interest in the latter operators' Grogan-Cochran 1, deep wildcat in Lake Creek area, and also interest in the 2200-acre block surrounding the Wilcox test. LaGloria operates a cycling plant in the LaGloria area, and it is reported that a plant is planned for the Montgomery County area if the well is sufficiently productive of gas and distillate.

Wildcats: Atlantic Refining Co. is preparing to drill another deep wildcat in Fostoria area of Montgomery County where the operators opened shallow Cockfield production in 1941. The new test will drill to the Wilcox.

TEXAS GULF COAST FIELD COMPLETIONS

Liberty County: Esperson—General Crude's Davis 27, 4688 ft fr s & 466 ft fr e l 806-ac tr, D. L. Kokernut sur, 5½-in 9288 ft, perf 8830-39 ft, 198 bbls 34.3-gr, ¼-in, gor 1280-1, td 9346 ft.

General Crude's Vajdak 2, extends production ¾-mi ne, 575 ft fr e & w l's & 467 ft fr nl of 86-ac tr, F. M. Gardner sur, 5½-in 8074 ft, 190 bbls 39.7-gr, ¼-in, tp 400, cp 950, gor 1112/1, td 9656 ft.

Wharton County: Withers—F. W. Michaux's Pierce Est. 44, 5987 ft fr sel Westall sur, 5½-in 5339 ft, perf 5308-16 ft, 163 bbls 26-gr, 5/32-in, td 5357 ft.

Texas Co.'s Pierce Est. 111-C, William Pettus sur, 7-in 5384 ft, perf 5352-64 ft, 121 bbls, ¼-in, td 5384 ft.

TEXAS GULF COAST WILDCAT COMPLETIONS

Liberty County—W. F. Bowman's Lobit 1, 12 mi s Liberty, 278-ac tr Samuel Neatherly sur, abnd 8008 ft.

TEXAS GULF COAST WILDCAT STARTS

Brazoria County—Amerada's Dow Chemical 1, Velasco area, 660 ft fr w & 1769 ft fr e l 911-ac tr, M. Henry & A. Calvit surveys, len 8000-ft test.

Grimes County—Hunt Oil Co.'s Yeager 1, 5 mi nw Iola, 933 ft w fr point 600 ft s of ne cor 50-ac tr & 2528 ft s of n l of A. H. Long sur, len Wilcox test.

Harris County—McDannald Oil Co.'s East Texas Oil Co. 1, 8 mi se Humble, 660 ft fr e, n & w l of n½ 80-ac tr Victor Blanco 8750-ac sur, len 4500-ft test.

Louisiana Gulf Coast

Potential Completed on Discovery at Jug Lake

Potential completed on Jug Lake discovery, Terrebonne Parish. Pipe set to tests sands in Avery Island wildcat, Iberia Parish. Wildcats staked in St. Tammany and St. Laundry Parish.

Terrebonne Parish: Superior has completed official gauge on LaTerre Land Co. 1, deep wildcat discovery in Miocene sand. The well flowed 454 bbls of 34.5-gr oil through 11/64-in choke from perforations at 10,214-19 ft, with 1700 pounds tubing pressure, casing sealed. Superior has a large block of acreage around this new discovery. Although not a record, the company's LaTerre 1 is among the deepest wells in South Louisiana, the hole bottomed at 13,417 ft.

Iberia Parish: Humble has cemented pipe at 9012 ft in Petie Anse Co. 2, wildcat on southwest flank Avery Island. Several sands showing possible production were logged, although definite locations of these levels have not been announced. Avery Island has had several deep tests within the past 12 months, all finding shows of oil and gas, but not enough to yield commercial production.

Acadia Parish: Continental is drilling around 10,000 ft in Ortego 1, discovery well in Tepetate field, and which was completed July, 1935. Operators are deepening the well to test sands that produce at Lewisburg or maybe deeper. The well produced from perforations at 8278-8303 ft, flowing gas and distillate. Another well produces from a sand at 9165-68 ft. Vincent and Welch recently opened a new sand on the flank, but it blew out.

Wildcats: Palmetto prospect will be tested again with Stanolind preparing to drill Haas 1 in 17-4s-6e, St. Landry Parish. Operators originally staked Brewer-Meinstedt 1, but changed location to the Haas acreage. It is scheduled to be a deep test.

J. Elliott Stanga is rigging Stevenson-Watts 1 on Goodbee prospect in St. Tammany Parish. Several wells have been drilled in the area around Stanga's projected test, many finding indications of production.

SOUTH LOUISIANA FIELD COMPLETIONS

St. Bernard Parish: Kenilworth—Vendome's Kenilworth 5, 603 ft fr el sec 59, 1100 ft n of center of Bayou Terre aux Boueff in 58-13s-14e, 7-in csg 10,665 ft, perf 10,608-614 ft, temp abnd 10,665 ft.

St. Charles Parish: Lake Salvador—Texas Co.'s State-Lake Salvador 16, lse 347, n 39 deg 36 mins e 23,584 ft fr USCGS Station "In" in lake, T-16s-22e, set 7-in 10,078 ft, perf 9970-10,000 ft, 470 bbls 3/16-in, tp 1550, csg sealed, td 10,250 ft.

St. Martin Parish: Fausse Point—Texas Co.'s State-Lake Fausse Point 12, lse 293, north flank, 6789 ft n and 5333 ft e of sw cor 26-11s-8e, 7-in 8893 ft, perf, flow 130 bbls 3/16-in, td 8945 ft.

LaFourche Parish: Delta Farms—California

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Co.'s Delta Farms 6, lse 1, begin nw cor sec 6, go s 1 deg e 1580 ft and e 740 ft to lcn in 6-17s-23e, 7-in 9060 ft, perf 8990-9054 ft, 235 bbls 34.1-gr, ⅛-in, tp 1530, cp 750, gor 731-1, td 9060 ft.

Jeff Davis Parish: Lake Arthur—Continental's Sturdivant 6, relief well to Sturdivant 5, 1717 ft w and 342 ft s nw cor 25-10s-4w, set 6-in 8474 ft, abnd 8510 ft.

Cameron Parish: West Hackberry—Stanolind's Gulf 33, 957 ft fr w and 400 ft fr sl 15-12s-10w, abnd 9801 ft.

SOUTH LOUISIANA WILDCAT COMPLETIONS

Evangeline Parish: Pine Prairie — Texas Co.'s LaDanois Land 2-B, 1620 ft e and 700 ft n of sw cor 35-3s-1w, opens Sparta sand on southwest flank, set 7-in 9493 ft, perf 9447-70 ft, 235 bbls, 10/64-in, td 10,717 ft.

Terrebonne Parish — Humble's Continental Land & Fur 2, West Castell prospect, fr nw cor sec 24-18s-12e, go 1980 ft s'ly alg wl, thence 400 ft e'ly at ra in 24-18s-12e, set 9⅝-in 9739 ft, temp abnd 11,334 ft.

Terrebonne Parish: New Field—Superior's LaTerre Land Co. 1, 1980 ft n and 660 ft e of sw cor 27-19s-15e, Jug Lake area, 7-in 11,765 ft, perf 10,214-19 ft, 454 bbls 34.5-gr, 11/64-in, tp 1700, td 13,417 ft.

SOUTH LOUISIANA WILDCAT START

St. Landry Parish — Stanolind's Haas 1, Palmetto area, 660 ft fr s and wl 17-4s-6e, lcn.

North Louisiana

Third Well at Lake St. John Is Best

Strike of major proportions indicated by third well at Lake St. John in Concordia Parish. Morehouse Parish wildcat shows salt water on drill-stem test. Deep well at North Lisbon recovers distillate on drill-stem test. Winn Parish wildcat going deeper with slim hole.

Concordia Parish: California Co.'s third well at Lake St. John, Pan-American 3, 1000 ft north of No. 2, is unofficially reported here to have flowed 60 bbls per hour on 7/64-in choke on initial gauge from Wilcox at 4555-75 ft. No official information has ever been revealed on any of the three wells. Nos. 1 and 2 are located in Sections 16 and 2, and Nos. 3 and 4 in Section 15. No. 1 was officially gauged at 136 bbls per day on 15/64-in choke and No. 2 at 104 bbls on 16/64-in. The third well is reported to have checked level with the first two, making a much better producer.

Morehouse Parish: Union Producing Co.'s Crossett A-1, C SW NE 6-22n-6e, east of Monroe gas field, showed only salt water on a drill-stem test of sandy lime from 6166-80 ft; cores had shown some oil. The well is drilling below 6347 ft.

Claiborne Parish: North of Lisbon field, in a deep gas-distillate area which is still being explored for satisfactory production, Union Producing Co.'s Meadows B-1, 13-21-5, made a drill-stem test at 10,266-76 ft which showed distillate, but detailed information was withheld.

Winn Parish: H. L. Hunt's Goodpine F-24, SW SE 13-12n-5w, is drilling below 8905 ft with reduced hole, after running casing to 8905 ft. The well was reported to have had shows of oil and gas.

NORTH LOUISIANA FIELD COMPLETIONS

Claiborne Parish: Haynesville — Mid-States Oil Corp.'s Hunt 1, ne sw 9-23n-8w, flow 55 bbls hr, 28/64-in, cp 725, tp 425, acid 5000 gals, perf 5350-68 ft, td 5425 ft.

Mid-States Oil Corp.'s Wynn B-1, sw se 8-23n-8w, flow 26½ bbls hr, ½-in, cp 725, tp 350, acid 5000 gals, perf 5420-30 ft, td 5535 ft.

Ohio's A. Taylor Acct. 8P-1, sw nw 14-23n-8w, flow 758 bbls, ¼-in, cp 725, tp 625, acid 5000 gals, gas/oil ratio 263 to 1, perf 5240-66 ft, td 5370 ft.

LaSalle Parish: Nebo — Placid's Taylor 2, 40-7n-3e, abnd 4245 ft.

LaSalle Parish: Catahoula Lake — Carter-Phillips Co.'s Catahoula Lake D-2, c sw sw, abnd 5731 ft.

NORTH LOUISIANA WILDCAT COMPLETION

Tensas Parish: Failure—Carter's Jacoby 1, c se se 34-14n-11e, abnd 4400 ft.

ARKANSAS FIELD COMPLETIONS

Lafayette County: Midway — Barnsdall's Roberts 6, ne se 11-15s-24w, flow 70 bbls, 36.5-gr, ¼-in, tp 25 pounds, tubing on packer, 5-in 6490 ft, Reynolds lime 6495-99 ft, td 6499 ft.

Southwood Oil Co.'s Hodnett 1, sw nw 18-15s-23w, flow 500 bbls, 14/64-in, tp 300 pounds, tubing on packer, gor 300/1, 5½-in 6470 ft, Reynolds lime 6480-89 ft, td 6489 ft.

Barnsdall's Dobson 3, ne ne 10-15s-24w, Reynolds lime low at 6560 ft, abnd 6575 ft.

MISSISSIPPI WILDCAT COMPLETION

Lincoln County: Junked—Freeport Sulphur Co.'s Clark 1, sw cor 15-5n-9e, junked 1850 ft.

MISSISSIPPI WILDCAT STARTS

Sharkey County—British-American's Houston 2, nw cor 23-11n-7w, lcn.

Yazoo County—C. A. Perkins' Iasigi 1, c ne ne 3-9n-1w, dk.

Hinds County—Plains Production Co.'s Gaddis 1, c nw ne 7-7n-3w, lcn.

Tidewater Associated-Southern Natural Gas Co.'s Brown 1, nw nw 12-6n-4w, lcn.

Claiborne County—Amerada's Arenz 1, 25-11n-3w, lcn.

Clarke County—Macro Drilling, Ltd's Long-Bell 1, c se sw 10-2n-16e, lcn.

Adams County—Sinclair Wyoming's Stowers 1, 16-8n-2w, drill water well.

Issaquena County—Pres Cochrane's Anderson-Tulley 1, nec nw sw 17-17n-3e, dk.

Jones County—Sinclair Wyoming's Wausau 1, c nw sw 25-8n-10w, wind blew derrick down, rebuilding.

Lincoln County — Freeport Sulphur Co.'s Clark 2, sw 15-5n-9e, lcn.

California

Small Heavy Oil Well in Ventura

Kern County shallow test failure; Tulare County wildcat fails to pick up showings; small heavy oil producer complete in Ventura County.

Kern County: Trico Oil & Gas Co. has abandoned Glide 1-1, 1-27-27, Mount Poso area, after entering gray sand at 2784 ft. Top of the Vedder was placed at 2757 ft.

Tulare County: No showings of importance were encountered by Richfield Oil Corp. in Churchill 1, wildcat, 35-20-24, Tulare area, which has been abandoned after drilling to 5566 ft.

Ventura County: A small pumping well appears to have been completed by Continental Oil Co. in Holser 1, wildcat, 14-4-18, Ramona anticline-Piru area. Hole was bottomed at 5228 ft and plugged back to 4663 ft with 506 ft open below shoe. It swabbed 200 bbls daily, 21 to 24-gravity oil, cutting 59 percent water and mud.

CALIFORNIA FIELD COMPLETIONS

Kern County: Edison—Union's Brockman 2, 330 ft n, 990 e w¼ cor 13-30-29, pump 22 bbls 22-gr, td 1008 ft.

Kern County: Poso Creek—Standard's No. 12, 1650 ft n, 990 w e¼ cor 5-28-27, pump 142 bbls 13.5-gr, 200 ft perf, 2698 ft, td 2700 ft.

Kern County: Ten Sections—Shell's KCL A-22-30, 990 ft s 1091 e nwc 30-30-26, flow 407 bbls 34-gr, 12/64-in, 700/0 lbs, perf 8208-8059, 8029-7956 ft, td 8210 ft.

Kings County: Kettleman North Dome—KNDA's No. 76-2P, 1661 ft n, 1190 w se cor 2-22-17, flow 186 bbls 50.5-gr, 287 ft perf 9725 ft, td 9730 ft.

Los Angeles County: Dominguez — Union's Callender 85, 2742 ft nly 3170 ft wly c/l Victoria & Central, on gas lift flow 168 bbls 31.4-gr, ½-in, perfs 6722-6814 ft, td 7372 ft.

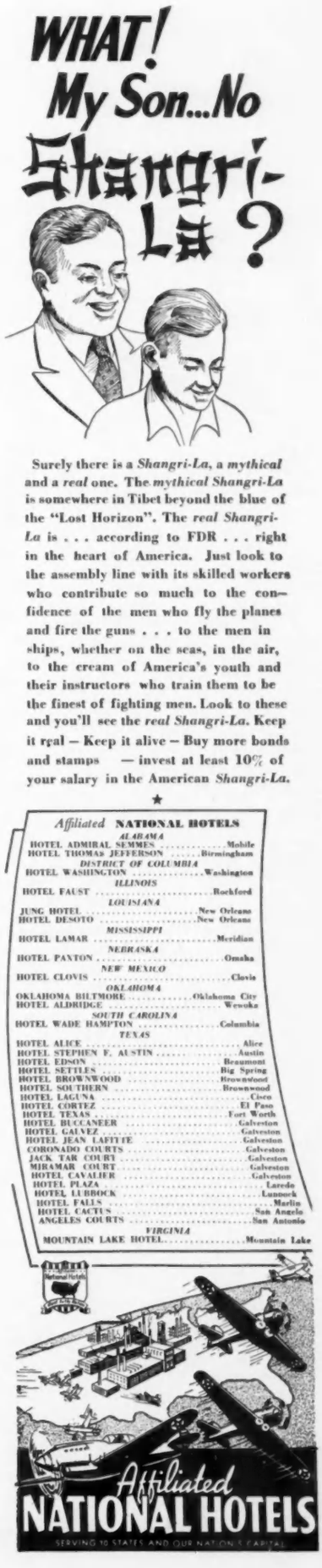
Orange County: East Coyote—Graham & Loftus' P3, 542 ft n 417 w se cor 13-3-10, pump 104 bbls 17-gr, perf 3495-3610 ft, td 4243 ft.

Orange County: Huntington Beach—Southwest Exploration Co.'s State 53, 190 ft n, 3270 ft e/l 23rd & Ocean, pumped, no est, 700 ft perf 5620 ft, td 5620 ft.

CALIFORNIA WILDCAT COMPLETIONS

Kern County: Failure—Robert B. Moran's Beer 1, 330 ft n 1650 w se cor 19-26-19, abnd 1599 ft.

Kern County: Failure—Trico Oil & Gas Co.'s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Glide 1-1, 100 ft n 100 ft e c 1-27-27, Vedder 2759 ft, abnd 2784 ft.

Orange County: Failure — Frankley-Harriman, Inc.'s Mills 1, 2250 ft s 1000 e nw cor 13-6-11, Miocene 3804 ft, abnd 4510 ft.

CALIFORNIA WILDCAT STARTS

Fresno County—Pure's CLG 1, sec 22-15-13, lcn. Mendota area.

San Joaquin County — Standard's Woods Comm. 1, sec 23-1-5, lcn. McDonald Island area.

Santa Barbara County—Standard's Los Flores 5, sec 21-9-33, bldg rig. Cat Canyon area.

Michigan

Arenac County Area Extension in Prospect

A mile extension or a new pool likely for Adams area, Arenac County.

Adams: Mogul Oil Co.'s McTaggart 1, C NE SE 35-19n-3e, Arenac County, showed 700 ft oil in 2 hrs natural and swabbed and flowed 79 bbls net oil after treatment, producing from Dundee lime at 2931 to 2943 ft. Located mile south of old Adams field, correlation indicates new closure rather than extension of older field.

St. Helen: Ohio's Basse 1, N½ NE NW 20-24n-1w, Roscommon County, full mile north of developed Monroe lime production, drilled zone dry at 4425 ft and will be plugged back to re-test saturation in Traverse between 2100-2300 ft.

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Wildcats: Sun Oil Co. cased Horner 2, S½ SW SW 11-24n-5w, Missaukee County, at 4425 ft, through a sulphur gas zone at 4110 ft. Drilled originally to 4300 ft with cable tools, rotary was moved in to ream and deepen because of the gas.

MICHIGAN FIELD COMPLETIONS

Allegan County: Salem—Regal Dutch Pet. Co.'s Ritz 3, nw ne ne 14-4n-13w, abnd Traverse lime 1591 ft.

Allegan County: Trowbridge—John F. Burton's Parkes 1, ne nw ne 31-1n-13w, Traverse, pump 92 bbls, 1337 ft.

Arenac County: Adams (extension)—Mogul Oil Co.'s McTaggart 1, c ne se 35-19n-3e, Dundee lime 2789 ft, swabbed and flowed 79 bbls 16 hrs after acid, 2941 ft.

Bay County: Kawkawlin — Gulf's Sam 1, n½ sw se 27-15n-4e, Dundee lime, pump 56 bbls 13 hrs, td 2938 ft.

Osceola County: Reed City—Pure's Richards B3, s½ ne nw 19-18n-10w, Monroe lime 3617-61, swabbed 59 bbls, 3667 ft.
Pure's Mund 1, n½ ne se 6-17n-10w, Monroe lime, pump 52 bbls, 3626 ft.

Roscommon County: Richfield—McClanahan Oil Co.'s Bauman 2, n½ ne ne 24n-1w, Monroe lime, flow 115 bbls, 4190 ft.

Roscommon County: Headquarters — Pure's State D1, n½ sw ne 34-21n-3w, abnd 3454 ft.

Van Buren County: Bloomingdale — Clapsaddle & Harris' Edgerton 1, se ne sw 28-1s-14w, abnd 1343 ft.

Van Buren County: Columbia — Michigan Devonian's Schmidt 1, n½ nw sw 3-1s-15w, abnd 1178 ft.

MICHIGAN WILDCAT STARTS

Arenac County—Rayburn & McKenna's Wojtowicz 1, n nw se 22-19n-4e, rig.

Genesee County—A. L. Williams' Totten 1, sw se ne 11-9n-7e, rig.

Gratiot County—Chartiers Oil Co.'s Church 1, ne se ne 31-12n-3w, rig.

Mecosta County—Sun Oil Co.'s Murray 1, s nw sw 5-16n-7w, dr.

Missaukee County—Gordon Oil Co.'s Blue 1, s se se 26-22n-6w, lcn.

Van Buren County—Clapsaddle's Lyle 1, w nw nw 4-4s-14w, dr.

Eastern States

NEW YORK COMPLETIONS

Allegany County—Vosburg Oil Co., Green farm, Bolivar, 12 bbls, Richburg, 1382 ft.
Bradley Prod. Corp., Nobles farm, Alma, 8 bbls, Richburg, 1342 ft.
B. & B. Oil Co., Curtis farm, Bolivar, 8 bbls, Richburg, 1379 ft.
John W. Sawyer, S. B. Smith farm, Bolivar, 7 bbls, Richburg, 1326 ft.
LeSeur Oil Co., Crandall farm, Bolivar, 8 bbls, Richburg, 1424 ft.
Central Oil Co., Holtum farm, Scio, 12 bbls, Richburg, 1226 ft.
Richardson Pet. Corp., Norton farm, Scio, 8 bbls, Richburg, 1289 ft.
Messer Oil Co., Merritt farm, Alma, 10 bbls, Richburg, 1372 ft.
Otsquago Co., Pike farm, Alma, 7 bbls, Richburg, 1460 ft.
Richardson Oil Co., Blackman farm, Bolivar, 10 bbls, Richburg, 1532 ft.
J. F. McBride, Duke farm, Bolivar, 7 bbls, Richburg, 1338 ft.
Prattsburg Oil Co., Comfort farm, Scio, 6 bbls, Richburg, 1335 ft.
E. B. Sage et al, Vars farm, Bolivar, 8 bbls, Richburg, 1422 ft.
Edward McLaughlin et al, Briggs farm, Wellsville, 6 bbls, Fulmer, 1328 ft.
Bradley Prod. Corp., Smith-Gray farm, Clarksville, 8 bbls, Richburg, 1386 ft.
Hughes Bros., Hughes farm, Genesee, 10 bbls, Richburg, 1430 ft.
Sloan & Zook, Green farm, Genesee, 10 bbls, Richburg, 1370 ft.
Shamrock Oil Co., Frost farm, Genesee, 7 bbls, Richburg, 1377 ft.

NEW YORK INPUT WELLS

Allegany County—Ebenezer Oil Co., Herrick farm, Alma, Richburg, 1371 ft.
Walter J. McEmroe, Hoover farm, Bolivar, Richburg, 1526 ft.
Ebenezer Oil Co., Vincent farm, Scio, Richburg, 1130 ft.
Messer Oil Co., Merritt farm, Alma, Richburg, 1412 ft.
Messer Oil Co., Merritt farm, Alma, Richburg, 1343 ft.
Bradley Prod. Corp., Rolls farm, Richburg, 1315 ft.
Hanson & Ehret, Gordon farm, Scio, Richburg, 1082 ft.
Cousins Oil Co., Brandes farm, Wellsville, Richburg, 1380 ft.
South Hill Oil Co., Harrington farm, Wellsville, 1379 ft.
Sawnett Oil Co., Merritt farm, Genesee, Richburg, 1429 ft.
F. J. Wilson, Brudick farm, Wirt, Richburg, 1416 ft.

OHIO COMPLETIONS

Ashland County—Lyons Co.'s Heffelfinger 6, 0.67 gas, 2856 ft.
Ross, Weimer & Ross' Burnson 1, abnd 470 ft.

Coshocton County — Robinson-Rutledge's Haines 2, 0.73 gas, 3165 ft.

Gallia County—Portage Producers' Cambria Clay Prod. Co. 22, abnd 3020 ft.

Holmes County—Ohio Fuel's Young 2, abnd 2966 ft.
Ohio Fuel's Hunter 1, 0.17 gas, 3109 ft.

Knox County—Ohio Fuel's Beckley 1, abnd 2972 ft.

Licking County—Smith & Siler's McDonald 1, 0.2 gas, 770 ft.

Loraine County—Ohio Fuel's Maringer 1, abnd 2632 ft.

Medina County—Ohio Fuel's Kellogg 1, 0.65 gas, 3455 ft.

Meigs County—H. M. Nelson's Smith 1, 0.4 gas, 571 ft.

Monroe County—Clem Peters' Schell 1, 1 bbl, 1476 ft.

Morgan County—E. N. Williams' Grubb 1, 0.08 gas, 1481 ft.
Industrial Gas Corp.'s Weaver 1, abnd 4275 ft.

Muskingum County—Industrial Gas Corp.'s Barkhurst 2, abnd 4542 ft.
Ohio Fuel's Bowers 1, 0.1 gas, 3907 ft.

Perry County—Preston Oil Co.'s Madden 1, 146 bbls & 0.03 gas, 3270 ft.
Ohio's Divan 1, 50 bbls, 2892 ft.
Pure's Pargeon 2, 10 bbls & 0.5 gas, 3265 ft.

Tuscarawas County—James Upham's Wagner 1, 5356 ft.

Washington County—Hanlon et al, Lehman 1, abnd 3065 ft.
Loman Farm Oil Co., Loman 1, 4 bbls, 1650 ft.

PENNSYLVANIA COMPLETIONS

Armstrong County—Sheloata's Rupert 1, 0.21 gas, 1546 ft.
Humphries, Stone & McCall's Kurdes 2, 0.02 gas, 3249 ft.

Greene County—Carnegie Nat. Gas Co.'s Phillips 1, 0.56 gas, 2230 ft.

Washington County—Union Gasoline & Oil Corp.'s Craft 837, abnd 2810 ft.

OLD WELLS DRILLED DEEPER

Armstrong County—Brummage & Brummage's Hartley 1, abnd 3841 ft.

Greene County — Cleveland-Cameron Gas Co.'s Anderson 1, 0.05 gas, 3352 ft.

WEST VIRGINIA COMPLETIONS

Braxton County—Trace Gas Co.'s Gerwig 1, 0.08 gas, 2159 ft.

Cabell County—J. H. Chaffin's Holley 1, 0.04 gas, 3427 ft.
So. Penn Nat. Gas Co.'s Rothlisberger 6, 0.6 gas, 1640 ft.
Hope Nat. Gas' Holpp 8607, 15 bbls & 0.04 gas, 1885 ft.

Clay County—Pitts. & W. Va. Gas Co.'s Elk River Coal & Lumber Co. 7850, 0.06 gas, 2214 ft.
Pitts. & W. Va. Gas Co.'s Elk River Coal & Lumber Co. 7862, 0.11 gas, 1939 ft.

Gilmer County—Hope Nat. Gas Co.'s Bennett-Mercer 8605, 0.16 gas, 2265 ft.
South Penn Nat. Gas' Marshall 1, abnd 2652 ft.

Jackson County—Columbian Carbon Co.'s Hutchinson 1, 3.14 gas, 5256 ft.
Columbian's Winter 2, 13.13 gas, 1640 ft.
Columbian's Parrish 1, 12.68 gas, 4984 ft.
United Carbon Co.'s Cunningham 976, 7.65 gas, 4985 ft.
United Fuel Gas Co.'s Walker 5089, 3.34 gas, 5237 ft.
United Fuel's Carney 1, 3.86 gas, 5012 ft.

Kanawha County — Cameron Prod. Co.'s Belcher 1, 0.42 gas, 2472 ft.
United Fuel's Summers 5061, 5.96 gas, 5309 ft.

Lincoln County—United Carbon Co.'s Lincoln, 0.38 gas, 4108 ft.

Putnam County—R. H. Adkins' Babe 1, 0.15 gas, 3283 ft.

Ritchie County—Spruce Oil & Gas' Davis 3, 0.11 gas, 2025 ft.

Tyler County—Hope Natural's Ferrell 3733, 2 bbls & 0.01, 1797 ft.

Upshur County—Cumberland & Allegheny Gas Co.'s Darnell 322, 0.38 gas, 2463 ft.

OLD WELL DRILLED DEEPER

Lincoln County—Fez Gas Co.'s Peck 3, 0.22 gas, deepened from 2336 to 3619 ft.

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Men in the Industry's News

BRUCE K. BROWN of Chicago has been appointed assistant deputy coordinator of OPC, while Dr. John W. Frey, formerly director of marketing, has been advanced to special assistant to Ralph K. Davies, OPC announced last week.

B. K. BROWN

J. W. FREY

Brown, who for the past seven months has been serving as a consultant on aviation gasoline, will be a general assistant to Davies in the fields of refining and marketing. Since 1929, he has been connected with Standard Oil Company (Indiana), originally as general patent attorney but later in charge of petroleum research and development and as a member of the board of directors.

Dr. Frey will be succeeded as director of marketing by Robert Thach Collier, vice president of Great Lakes Carbon Corporation, who has been engaged in petroleum marketing for some 20 years. For 6 years he was division manager of sales for General Petroleum Corporation, resigning to become vice president of Van Fleet Durkee, Inc., operating a large chain of stations on the West Coast, and in 1931 joined Shell Oil Company as a division manager, a position he held until he was named vice president of the Great Lakes Carbon Corporation in 1940.

In his new position, Dr. Frey will continue the scientific work in which he has been engaged, but without the added burden of the detail of the marketing division.

BOB HUFF has been appointed district supervisor of the Oil and Gas Division, Texas Railroad Commission, with headquarters at Houston. Huff has been with the commission four years, and was transferred to the new position from Pampa.

W. H. BECKER, JR., office manager since 1937 for Jack Frazier, Houston oil operator, has been commissioned a lieutenant (jg) in the Naval Air Corps, and has been stationed at the Corpus Christi Naval Air Station as primary flight instructor.

CHESTER LUNT, mechanical engineer with Humble Oil & Refining Company, Houston, has joined the transportation staff of OPC, Washington.

J. W. CASON, formerly in the accounting department of Standard Oil Company of Louisiana at Shreveport, has moved to Little Rock, Arkansas, where he is comptroller for War Emergency Pipelines, Inc.

W. A. WATERS, six years in Venezuela with Standard Oil Company of Venezuela, has returned to Tulsa.

L. T. KITTINGER, vice president of Shell Oil Company in charge of marketing in territory east of the Rocky Mountains, is on a leave to head the salvage section of the materials division of War Production Board. He goes to Washington at once. P. E. Lakin, resident vice president in the company's Chicago office, has been named Kittinger's successor and will move to the New York office.

For several months Kittinger has been aiding the organization of employees in the oil, automobile and rubber industries into salvage committees over the country. Joining the company as a fuel oil salesman on the west coast, he became sales manager in 1941 for that section. He became vice president in charge of Atlantic Coast marketing six years ago. Lakin in 1933 went to the company's offices at St. Louis, where he was later named vice president in charge of marketing in the Mid-Continent. In 1940 he went to Chicago as resident vice president.

W. LLOYD HASELTINE, geologist for Magnolia Petroleum Company in West Texas the past five years, has been transferred from Midland to Wichita Falls as North Texas district geologist, succeeding Fred H. Moore, who has been placed in charge of Illinois operations with headquarters at Mount Vernon.

ALBERT P. GROEBL of Big Spring, Texas, has resigned as a director of Cosden Petroleum Corporation, and will devote his efforts to Westex Oil Company, a producing firm he and his brother, Ted O. Groebl own.

JAKE C. BRITTON, former general construction superintendent for O. C. Whitaker Company, Fort Worth pipe line contractors, has been appointed chief inspector for the War Emergency Pipe Line, Inc., and has reported for duty at Little Rock, operating headquarters.

H. G. BIEDERMAN is the new purchasing agent at Sun Oil Company's Tulsa office succeeding R. R. Burris, commissioned in the army.

C. D. MILLER, general superintendent, Barnsdall Oil Company, Tulsa, has accepted the vice presidency of British American Oil Producing Company. K. W. Haley, chief engineer and assistant superintendent, succeeds to the post of general superintendent for Barnsdall.

DR. F. V. L. PATTEN, chief supervisor of the Oil and Gas Division of the Texas Railroad Commission, has been appointed assistant director of the Division of Reserves in the OPC. He will report for duty about August 1.

Patten is the second Commission petroleum engineer to join the OPC staff, W. J. Murray, Jr., having occupied a similar position for several months. Patten expects to be situated in Houston for the time being.

DAVID L. GORDON of Refiners Export Company, Houston, has become associated with Anchor Petroleum Company and Tansel Oil Company, Tulsa. Gordon will represent the two companies in the Houston and South Texas territories and will specialize in the purchase and sale of butane and propane and various other petroleum products for movement in tank

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cars and large transports. He maintains offices in the Second National Bank Building, Houston.

S. H. MORTENSEN, engineer in charge of design for 10 years, has been appointed chief electrical engineer of Allis-Chalmers Manufacturing Company plants at West Allis, Cincinnati, Boston, and Pittsburgh.

C. C. VIRGIN, Oklahoma land man for The Texas Company, has been made district land man for the Illinois-Indiana-Kentucky area, exchanging places with W. A. Martin.

E. G. DAHLGREN, technical secretary of Interstate Oil Compact Commission, was in Springfield, Illinois, attending a conservation hearing last week.

JOHN E. MUIRHEAD has been appointed assistant to the president of International-Stacey Corporation with headquarters at Columbus, Ohio. Muirhead has had an extensive career in manufacturing and industrial engineering. Prior to his association with International-Stacey he was affiliated with National Automatic Dispensers, Inc., Montclair, New Jersey, as vice president, and with the Scovill Manufacturing Company, Waterbury, Connecticut, in various capacities in the manufacturing department. For 10 years he was with Sanderson & Porter, engineers, in New York and Chicago, as a member of the industrial engineering staff. He was educated in Canada. He came to the United States in 1919 after having spent some years in the steel and heavy machinery industries in the Dominion.

C. GRANNISS BONNER, formerly comptroller and more recently treasurer of the Brunswick-Balke-Collender Company of Chicago, has been elected treasurer of Pomona Pump Company, Pomona, California. Bonner relieves Donald C. McKenna, vice president and former treasurer, who will devote full time to the increasing production activities of the company's four manufacturing plants. Bonner is 45, a graduate of Swarthmore College, is a Phi Delta Theta and a member of the Controllers Institute of America.

OSCAR WOLFE, Houston, has been appointed chief engineer for War Emergency Pipeline, Inc. A. N. Horne was given a release from active duty as major in the Army to become general superintendent.

DR. THOMAS MIDGLEY, JR., has been elected an honorary member of the National Academy of Sciences. Dr. Midgley is chairman of the board of directors of the American Chemical Society and vice president of Ethyl Corporation. Among his scientific achievements are discovery of tetraethyl lead, development of refrigerants, and contributions to synthetic rubber research and to methods of extracting bromine from sea water.

ROY S. BONSIB, New York, chief safety inspector, Standard Oil Company (New Jersey), is on a routine inspection tour of Mid-Continent properties of the company's subsidiary and affiliated units. Accompanied by J. D. McCamey, Carter Oil Company safety engineer, he will visit producing and pipe-line operations in Oklahoma, Louisiana, Missouri, and Illinois before returning to the East.

ROBERT F. RUNGE, vice president of SKF Industries, Inc., Philadelphia, died July 6 in Germantown, Pennsylvania, after a prolonged illness. His entire business career was spent with SKF and its predecessor, the Hess-Bright firm. He became vice president in 1920.

Squeaks from the Bull Wheel

Just Cautious

"My darling," he breathed, "you're all the world to me. I don't know what I'd do without you. I love—"

At that moment the doorbell rang. The blonde jumped. "It's my fiance," she gasped. "You must leave at once. Please hurry!"

"But how am I going to leave?" he asked. "I can't go out by the door. Your fiance would see me."

"Jump out the window."

"But, darling, we're on the thirteenth floor."

"So what?" she snapped. "Don't tell me you're superstitious!"

First Lesson

And when you join the parachute corps, you must learn their theme song.

Theme song? What is it?

"It don't mean a thing if you don't pull that string."

To Err Is Very Human

At a banquet in New York, a prominent financier made an address which he ended with a passage from an immortal poet. When he sat down, the guest next to him whispered "You had that line from Keats a bit twisted."

"I said it that way purposely. I didn't want them to think that I had read it only the day before."

Making Allowances

If your father can hang the curtains in one hour, and your mother can also hang them in one hour, how long would it take for them to do it together?

Two hours, including the time they would use in arguing.

Conscientious Tax Payer

A man sent the city a check for $3.00 for a dog tax. He explained in a letter that he did not own a dog, never had owned one and never expected to own one, but his wife was such a hound he just thought he owed the tax.

Evidence

"My fiance takes me to the museum every Saturday."

"Really; what is he studying?"

"Economy."

He's Good

"Jones seems to be a successful man. I suppose he made hay while the sun shone?"

"Not only that, but he made it from the grass that other people let grow under their feet."

Foreign Propaganda

One evening, when moving pictures were shown in a Norwegian theater of a German ship unloading food at an Oslo pier, one man could not restrain himself. "Stop the machine," he shouted. "You're running the film backward."

Joke's on You

Plumber—Sorry, sir, I've forgotten my tools.

Professor—That's all right, my good man, I've forgotten what I wanted you for.

Have You Met?

Expert—An ordinary man a long way from home.

Psychologist—A scholar who expresses something everybody knows in terms no one can understand.

Highbrow—A person educated beyond his intelligence.

Bore—A man who talks about himself when you want to be talking about yourself.

Specialist—One who knows more and more about less and less.

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Notes for the Equipment Buyer and User

Screw Jack

TEMPLETON, KENLY & COMPANY

Templeton, Kenly & Company, Chicago, has announced a 25-ton standard speed, bevel gear, ball bearing screw jack, No. 7300.

Designed for heavy-duty lifting, lowering and skidding work, the manufacturer claims that the safe mechanical action, screw adjustment and enclosed ratchet mechanism combined with both toe and cap lift make it an ideal jack for all heavy industrial work.

Toe lift is a minimum of 11 inches from base, but jacks can be made with toe in any position to suit user's requirements, and the base design can be modified. No. 7300 is guaranteed to lift its full rated capacity of 25 tons on cap and 12½ tons on toe; has a full 6-inch lift and weighs only 82 pounds complete.

Gas Control

The Bristol Company of Waterbury, Connecticut, has published a data bulletin, No. 43, on its systems of automatic control for regulating gas saturation in natural gas distribution systems. Sketches are included to show methods of use.

Los Angeles Nomads Will Meet July 24

The Los Angeles Chapter of Nomads will hold its annual meeting, including a golf tournament, games and dinner, at the Chevoit Hills Country Club, July 24. A large number of oil men from foreign countries have been invited.

The golf tournament will start in the morning and continue throughout the day. Prizes will be awarded to winners in the different categories. A dinner and floor show will feature the evening entertainment.

McCullough Opens New Building at Los Angeles

McCullough Tool Company has opened a new shop and office building in Los Angeles. Located at 5820 South Alameda Street at Slauson Avenue, the new plant is adjoined by a larger parking yard and service area.

The building is 60 feet by 200 feet of reinforced concrete construction, with offices at the front and the machine shop occupying the rear. The engineering department and laboratory are situated on a mezzanine floor above the offices.

Both the shop and offices are air-

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Professor of Geology, University of Wisconsin

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8. The Clastic Sediments
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10. Sediments of Chemical Deposition: Siliceous, Ferruginous and Manganese Sediments
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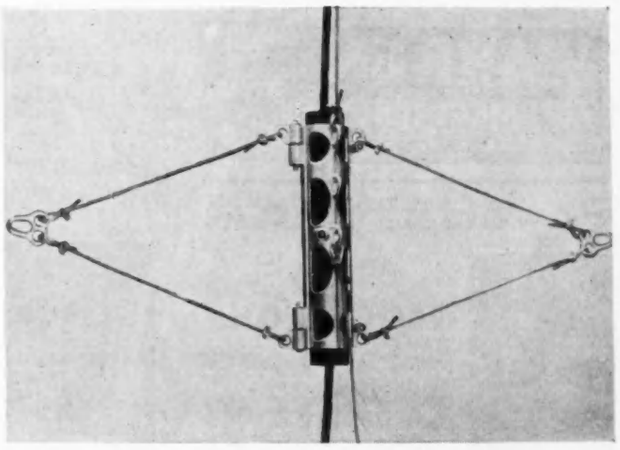

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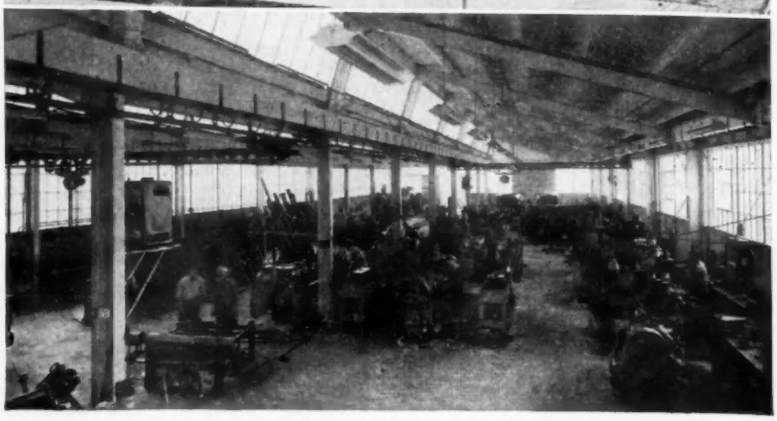

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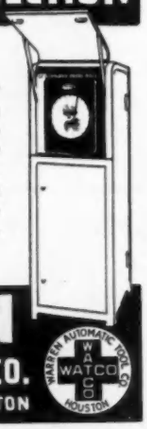

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Endicott Appointed Sales Manager Continental Supply

The Continental Supply Company has announced the appointment of N. A. Endicott as sales manager, effective July 1. He will make his headquarters in Dallas.

A veteran oil field supply man, except for a short time out to serve in the army during World War I, he has been with the company for 26 years.

Endicott was vice president of Continental Supply Company, Ltd., in Canada from 1929 to 1935 and has been active in the supply business in most of the country's major fields.

N. A. ENDICOTT

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